The Uneven Development of Italy's Regions, 1861 – 1936: a New Analysis Based on Human Capital, Institutional and Social Indicators

Gabriele Cappelli

Thesis submitted for assessment with a view to
obtaining the degree of Doctor of History and Civilization
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Department of History and Civilization

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Abstract

This thesis sheds new light on the process of economic divergence that characterized Italy's regions in the second half of the nineteenth century and the Interwar period. It shows that social capital had a limited impact on the regions' economic fortune prior to the Great War. Further, only specific dimensions of social capital affected regional economic growth. Instead, the country's regional inequalities grew large as a result of different endowments of human capital. In turn, human capital differences inherited from pre-unification states remained large as a result of public policy, which established a decentralized education system in 1859. This choice delayed convergence in primary schooling across regions, because of the tight connection between municipal fiscal capacity and the supply of schools and teachers. Centralized education, introduced with the Daneo-Credaro Reform in 1911, loosened this link and favoured regional convergence in human capital. Contrary to expectations, local institutional mechanisms did not play a large role in the growth of mass education: a detailed analysis of the determinants of primary schooling across Italy's provinces in the years 1871 – 1911 confirms that local economic conditions influenced the development of human capital far more than political participation and access to local decision-making. These results cast doubt on recent interpretations of the socioeconomic divergence experienced by Italy's regions. While further research is needed on the link between local institutions and the development of basic education, this work calls for a renewed focus on the way that central policy affected regional divergence and Italy's overall economic development before the Second World War.

Introduction

The very uneven development of Italy's regions under the new kingdom that had been established in 1861 soon led to the rise of a *Questione Meridionale* – a debate concerning the determinants of the country's regional socioeconomic inequalities, as well as the specific question of why the South lagged behind. The persistence of such a long-standing regional divide would be reflected in the historiography of Italy's economic development: a large body of literature has tackled the issue. While previous studies have dealt with the regional inequalities in terms of income and industrialization, recent research has analysed this divergence by considering multiple dimensions of human and economic development. *In Ricchezza e in Povertà*,[1] edited by Giovanni Vecchi and published in the context of the 150th anniversary of Italy's unification, has provided new evidence for the improvement of the well-being of Italians from 1861 to the present day. The issue of regional disparities is treated by offering data on life expectancy, income, poverty, human capital and physical stature. Some of these figures are based on Emanuele Felice's work, which has recently culminated in a new book seeking to provide a re-interpretation of Italy's regional divide using modern economic theory and fresh historical evidence. *Perche' il Sud e' rimasto indietro*[2] (2014), re-examines, and rejects one by one, previous hypotheses on the origin and persistence of this issue: the Marxist view based on a variant of the core-periphery model, according to which the North drained economic resources from the South to finance its growth in the late-nineteenth century; the view that the South lacked positive social capital that could foster auto-propulsive economic growth; the idea that the south of Italy could not sustain modern economic development because its people lacked basic skills, to be ascribed to genetic differences between Mediterranean areas of Italy and continental Europe. Instead, Felice suggests that the South converged with the North only partially – and only as a result of passive modernization. The latter may be defined as an improvement adopted insofar as it provides benefits to the ruling elites, but not to the majority of the population, because widespread economic and human development may shake the foundation of the elites' power. According to this interpretation, substantial improvements in health and schooling were brought about by state intervention; yet, the central government failed to prompt auto-propulsive economic growth with top-down industrial policy in the post-war period.

[1] In wealth and poverty.
[2] Why the South has lagged behind.

The hypothesis that regional inequalities pertaining to local institutional performance played a major role in the rise and persistence of Italy's regional divide is certainly appealing. However, such a possibility has not yet been sufficiently investigated, particularly in light of previous hypotheses that have gained momentum in recent years, like the ones that put forward social capital as a key factor in Italy's regional development.

This thesis fills this gap. It shares Emanuele Felice's focus on the human factor, that is, human agency and the effect of public policy; institutional as well as human and socioeconomic development. It contrasts sharply with views that identify geography or genetics as the main determinants of long-term patterns of economic growth, rejecting the idea that economic development depends mostly on fate. It analyses the early stage of Italy's development, the so-called Liberal Age, which stretches between the unification of the Kingdom of Italy (1861) and the Great War. This period has been largely under-researched, although primary sources offer qualitative and quantitative evidence that ought to be used to shed light on a topical moment of the country's economic history, which certainly influenced its future. The research shows that choices made by policy-makers in the mid- and late-nineteenth century affected Italy's path of economic growth far beyond the turn of the century. In particular, the choice to provide public primary schooling through a decentralised system proved to be detrimental for regional convergence in primary education – a result that goes against the conventional wisdom that decentralised educational systems are the best choice to promote human capital accumulation in the early stage of a country's development. Instead, it was the centralised schooling adopted in 1911 that promoted educational expenditure in Italy. To a lesser extent, it also improved the diffusion of schools in rural regions and in the south of the country. These results have far-reaching implications for the historiography of the country's development, because human capital has been shown to be the most important factor in regional economic growth in pre-WWII Italy. This becomes even more critical once we consider that social capital played a very limited role in fostering economic growth prior to the Great War. Finally, local enfranchisement – a proxy for the extent to which citizens could embrace active instead of passive modernization – differed substantially across regions. However, I argue that differences in local institutional mechanisms did not affect the regional pattern of investment in public schooling. Schooling growth was largely determined by pre-existent socioeconomic conditions, municipal fiscal capacity in particular, which in turn seem to have been largely exogenous to political mechanisms and local policy-making.

Only the central government could intervene to limit the detrimental effect of the regions' economic inequalities pertaining to regional schooling. Unfortunately, it did so only mildly, and only at the beginning of the twentieth century, when Italy's regional divide in education had already grown stable and become chronic, if not self-reinforcing. Although passive modernization is certainly relevant to the case of Italy's primary schools, the extent to which local elites can embrace active modernization autonomously may be more limited than what Felice has contended. Thus, it seems that a re-assessment of his recent conclusions is warranted, including a comprehensive evaluation of the role of the state in advancing human development and, in turn, the development of ultimate and proximate determinants of long-term economic growth.

The thesis is divided into three papers, which are tightly connected. The first aims to test quantitatively whether social capital influenced conditional convergence across Italy's regions in the years 1871 – 1911, one of the major issues in the historiography of Italy's development, and one that Felice has partially rejected in his recent book. Despite the attention this question has raised, no attempts have been made to produce quantitative estimates of social capital regional inequalities prior to the Great War, although Felice has provided some long-term figures dating back to 1871 and 1891. Thus, a variety of sources are mined for descriptive evidence of the extent of the regional divide in social capital in late-nineteenth century Italy, in order to assess their effect on patterns of per capita income growth. While in Felice's view, social capital seems to have been an important factor of regional growth after WWII, a quantitative analysis performed for the period 1871 – 1911 shows that basic human capital measured by literacy had a much more significant impact on per capita GDP growth than social capital.

In light of the above, the second paper of the thesis aims to provide a better understanding of Italy's large regional differences in human capital, and of their persistence over time – well into the Interwar period. Here, education policy and fiscal capacity are chosen as the two primary determinants of schooling. The main hypothesis, first introduced by Michelangelo Vasta, is that southern and rural regions could not fund mass primary schooling under a decentralized education system due to limited prosperity and, in turn, limited fiscal capacity. An alternative hypothesis was recently elaborated by Brian A'Hearn, Claudio Auria and Giovanni Vecchi. They maintain that fiscal capacity was determined largely by local enfranchisement and fiscal policy. From this point of view, local institutional mechanisms – not a lack of centralised schooling – prevented southern regions from catching up with the North. Although the paper uses a proxy to

control for this potential mechanism, the hypothesis is more deeply explored in the third paper. A long-term analysis (1863 – 1936) confirms that large regional disparities in the municipalities' fiscal capacity slowed convergence in schooling and – possibly – literacy rates. Once the system was centralized in 1911, however, limited fiscal capacity ceased to be a determinant of schooling: southern municipalities were able to allocate a larger share of their budgets to education because of state transfers and loans that brought about convergence in per capita education expenditure. Indices of schooling and education show that the pace of regional convergence improved to some extent in the Interwar period. However, the Great War, the Great Depression and the growing focus on rearmament in the 1930s might have limited the efforts of the government to improve educational outcomes.

The third paper addresses similar research questions concerning the factors driving the development of human capital. It concentrates on the period characterised by a decentralized education system (1870 – 1911). It aims to understand whether local political mechanisms à la Engerman and Sokoloff influenced fiscal policy – given the number of public goods the city councils sought to supply – and if this determined fiscal capacity. The paper offers a finer level of detail as it focuses on Italy's provinces instead of regions. Although the Engerman-Sokoloff thesis has gained momentum in economics and economic history, and especially in the economic history of education, Italy's case suggests that local electoral franchise (proxying the extent to which people could influence policy-making) was not the primary determinant of the municipalities' fiscal policy. Instead, this latter was more connected to economic prosperity and industrial growth. Moreover, the marginal effect of electoral franchise on schooling was very limited in the late-nineteenth century, and basically faded out by the turn of the century. By contrast, fiscal capacity directly affected schooling, its effect being significant throughout the period analysed. This reinforces the results of the second paper concerning the debate on decentralized versus centralized education systems in the context of regional economic inequalities. Further, it suggests that viewing the economic history of education through the lens of elites and political mechanisms should be rethought, towards a more comprehensive understanding of the role played by state policy. As the final conclusions sum up, these findings may have important implications for the future interpretation of Italy's regional divide. The next three pages show Italy's provinces and regions between 1871 and 1919, in order to provide the

reader with a basic reference point. Each paper includes an appendix with data, as well as further information on the methodology adopted.

Italy's provinces, regions and macro-regions, 1871 – 1919

Figure I – Italy's provinces, 1871 – 1919.

Notes: the provinces of Veneto (Rovigo, Verona, Padova, Vicenza, Venezia, Treviso, Belluno and Udine) became part of the Kingdom of Italy in 1866. Roma was annexed in 1871.

Figure II – Italy's regions, 1871 – 1919.

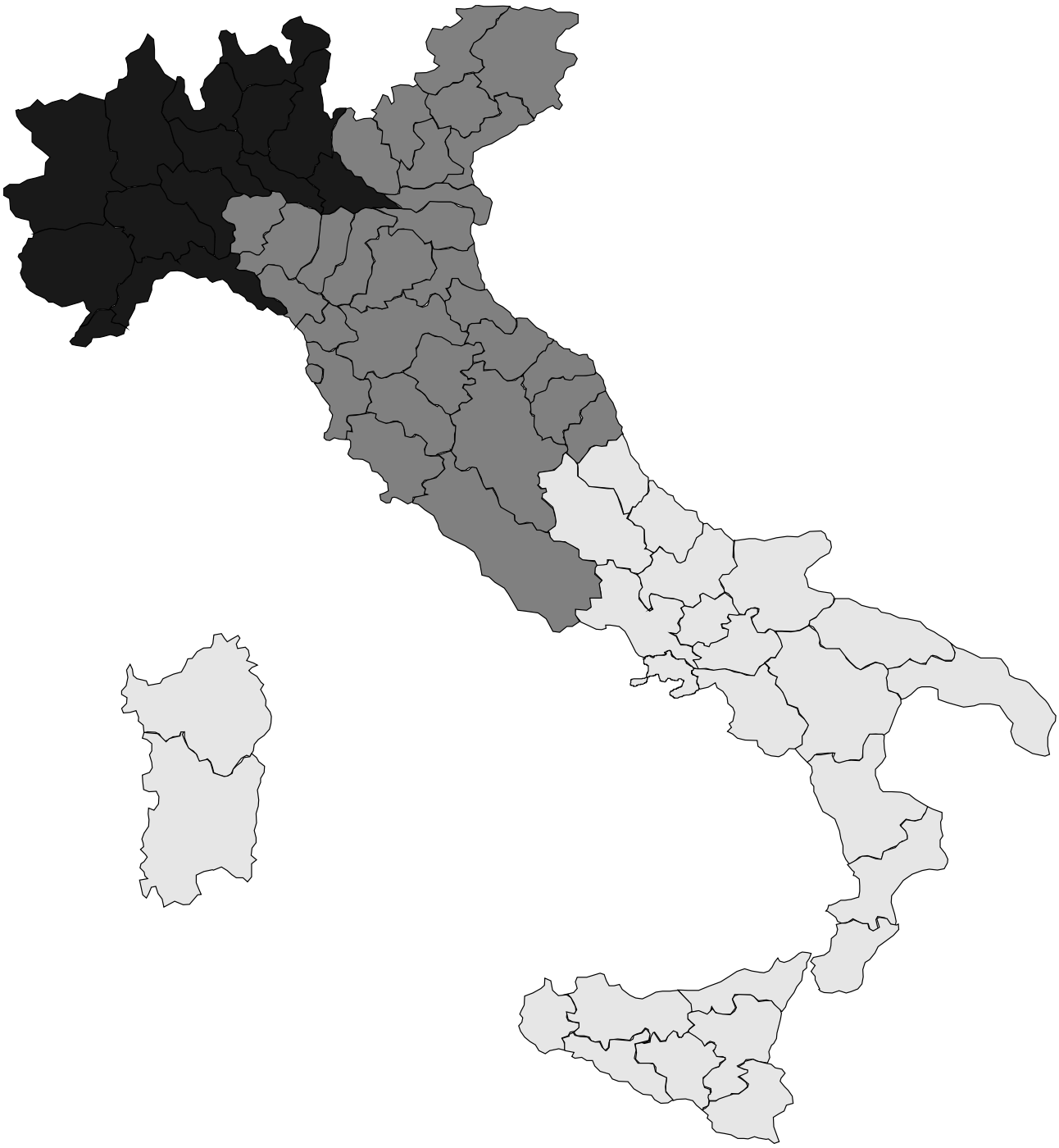

Figure Ⅲ – Italy's provinces and the country's macro-regions, 1871 – 1919.

Notes: the north-west is highlighted in dark grey, the north-east (Veneto) and centre in grey and the southern regions (including islands) are in light grey. Commonly, the country is considered to be divided between the North (including the north-west and the NEC regions) and the South (the light-grey area).

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The Italian regional divide in the Liberal Age (1861 – 1914): new measures of social capital

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Abstract

The historiography of Italy's regional divide has recently put forward social capital as a potential key factor in explaining the origin and persistence of the economic gap between the northern and the southern regions of the country. Yet, quantitative estimates of the phenomenon for Italy's Liberal Age (1861 – 1914) are still tentative. This paper fills the gap by exploring different proxies of social capital, which are largely based on new sources. Instead of taking into account one synthetic index, I investigate the three dimensions of social capital (networks, social participation and trust) separately. Against the conventional wisdom, the results show that only one dimension of social capital, that is trust, significantly correlates with income growth in the years 1881 – 1911; Human capital turns out to be the main determinant of income growth in the period. The magnitude of its marginal effect on economic growth is six times larger than that of social capital. This result casts doubt on the role played by social capital in Italy's regional divergence, in line with the most recent interpretations of Italy's economic history.

Introduction

Social capital has recently provided new tools for understanding the economy, by bringing some of the most important criticisms of 'perfect markets' from a micro- to a macroeconomic perspective. In spite of its growing importance in the economic literature, social capital has been largely neglected by economic history. The present paper elaborates new estimates of social capital dimensions for Italy's regions, from 1861 to 1914. It underlines the importance of multidimensionality by evaluating different proxies of social capital, and their roles in explaining regional patterns of economic growth. A qualitative and quantitative analysis confirms that social capital differences were large by the time of unification (1861) and that they did not fade out prior to the Great War. Furthermore, the present work notes that dimensions of 'civicness' – that is, social participation and trust – seem to have been determinants of the regions' economic fortune, as qualitative sources suggest. Econometric results based on a model of conditional convergence across Italian regions are mixed, and they indicate the presence of a positive but weak correlation between per capita income growth and social capital. Instead, human capital is found to be a prominent factor of regional development. Therefore, against the conventional wisdom, social capital might have had a negligible direct impact on growth rates across Italy's regions between 1871 and 1911. The conclusions put forward some alternative explanations on the role of social capital dimensions, which may be the subject of further research.

The paper is organized as follows: Section (1) introduces the concept of social capital and outlines its importance in economics and economic history. Section (2) discusses the historiography of Italy's regional development and introduces social capital as a potential explanatory factor. Section (3) presents new estimates of social capital dimensions for Italy's regions in 1871 – 1911. Section (4) implements the indices of social capital in a simple panel-data model of conditional convergence. Finally, Section (5) outlines the conclusions. An appendix follows, in order to present additional data and clarify the methodology used.

1.1 Social capital

Social capital has garnered a great deal of attention in economics since the 1990s, when Putnam et al. published *Making democracy work: civic traditions in modern Italy* (1993). Yet, in hindsight, the term *social capital* does not seem very innovative. Hanifan had already employed this term in the early 20th century, in the context of educational studies (Castiglione et al. 2008). Social capital

in disguise can also be discerned throughout the 18th century. Galiani's economic thought employed several ideas that would be picked up by the literature on social capital (Screpanti and Zamagni 2005). The question then seems to be: why has social capital drawn economists' attention so late? Indeed, the number of citations of the term has grown exponentially since the early 2000s. The reason probably lies in the long-standing predominance of the neoclassical paradigm and a belief in 'perfect markets'. By contrast, social capital allows researchers to rely on more realistic assumptions, which were originally developed in microeconomics – such as the presence of transaction costs, opportunism, problems of cooperation and trust – and to apply them in the context of macroeconomics, especially in growth and development studies.

Yet, soon after the enthusiasm for social capital had spread, different voices began to claim that the definition of social capital was too vague, and that quantitative analyses might have relied on very tentative and rough measures. In spite of these widely recognized issues, social capital has gained ground, and it is nowadays used in both qualitative and quantitative analysis by economists and, to a lesser extent, by economic historians.

Is social capital really an equivocal term? Social capital is indeed a multifaceted concept, and as such it cannot be readily defined. However, one can easily show how key features of social capital are shared by different and apparently contrasting – or competing – definitions, in order to provide a more solid basis for future studies.

Social capital as a resource was introduced by Bordieu and Coleman in the 1980s. The former defined social capital as "actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition". He was the first to hone in on the concept as an exploitable resource, whose potential is contingent upon the endowment of other types of capital (Bordieu 1986). By contrast, Coleman claimed that "social capital is defined by its function. It is not a single entity but a variety of different entities, with two elements in common: they all consist of some aspects of social structure, and they facilitate certain actions of actors within the structure" (Coleman 1988). Putnam et al. held that aspects of social capital – "features of social organization such as trust, norms and networks that can improve the efficiency of society by facilitating coordinated actions" – provide a fundamental explanation for the growth and persistence of institutional and economic inequalities across Italy's regions since 1970. These authors used diverse proxies in order to capture and

measure social capital dimensions, and this too drew the attention of economists. Since then, several researchers have tried to incorporate social capital, or some of its central dimensions, in economic growth models, which provided further insights into the problem of economic development (Knack and Keefer 1997, Guiso et al. 2004, Guiso et al. 2010).

The main definitions employed by economists are summarized in the following table (Table 1.1.1). Herein, we see that social capital is actually a well-defined and framed concept, and that its flexibility (sometimes erroneously labelled as vagueness) is by and large related to its multidimensionality.

Author	Description
Hanifan (1916)	Goodwill, fellowship, mutual sympathy, and social intercourse among a group of individuals and families
Bordieu (1986)	Actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition – In other words, to membership in a group, which provides each of its members with the backing of the collectively-owned capital, a credential which entitles them to credit, in the various senses of the word.
Coleman (1988)	Social capital is defined by its function. It is not a single entity but a variety of different entities, with two elements in common: they all consist of some aspects of social structure and they facilitate certain actions of actors – whether persons or corporate actors – within the structure. Like other forms of capital, social capital is productive [and] may be specific to certain activities. […] Unlike other forms of capital, social capital is inherent in the structure of relations between actors and among actors.
Putnam et al. (1993)	Features of social organization such as trust, norms and networks, which can improve the efficiency of society by facilitating coordinated actions.
Guiso et al. (2010)	Those persistent and shared beliefs and values that help a group overcome the free rider problem in the pursuit of socially valuable activities.

Table 1.1.1 - Social capital definitions.

Sources: see text.

A simple and yet quite illuminating exercise can be conducted in order to demonstrate that these definitions share the same core elements. This approach stems directly from Van Deth (2008). The

author argues that "the lack of a broadly accepted or clear-cut definition of social capital is perceived widely as a pressing issue. Yet in case of functional approaches, the exact form of social capital is relevant as long as it performs the functions presumed" (Table 1.1.2).

Elements and functions	Terms used
Stable social norms	Durable (Bordieu 1986), persistent (Guiso et al. 2010), institutionalized (Coleman 1988).
Sociability and social structure	Intercourse (Hanifan 1916), relationships (Bordieu 1986), structure of relations (Coleman 1988), networks (Putnam et al. 1993), shared (Guiso et al. 2010)
Social capital as a resource which enhances cooperation, trust and coordination among agents	Credential (Bordieu 1986), facilitate certain actions of actors within the structure (Coleman 1988), facilitating coordinated actions (Putnam et al. 1993), help a group overcome the free-riding problem (Guiso et al. 2010)

Table 1.1.2 - Social capital: consistency among different definitions.

What happens if one simply patches together the key elements identified, which come from different sources? The result is an operative definition: social capital is a "durable, persistent or institutionalized structure of social relationships and networks that facilitate coordination and cooperation within and among groups, and help these to overcome the free-riding problem". The Organization for Economic Cooperation and Development (2001) similarly defines social capital as "networks together with shared norms, values and understandings that facilitate co-operation within or among groups". Interestingly, the OECD refers to concepts beyond that of networks. This deeper investigation of social capital dimensions led to the widely accepted idea that social capital can be further divided into three (or more) different but closely related elements: networks, civic engagement and trust. This simple analysis provides evidence that social capital does not need a further and more precise definition, as Guiso et al. (2010) claim. What is really needed is a thorough understanding of the dimensions of social capital and of the way they actually affect economic performance in different contexts. The next section elaborates on the concept of social capital, and sheds light on its dimensions and measurement.

1.2 Deconstructing social capital

Current literature on the topic recognizes different types and dimensions of social capital. Among the former, bonding, bridging and linking social capital stand out (cf. Sabatini 2005 for an overview). Bonding social capital refers to close and strong ties among members of the same network – for example, families or ethnic groups. This kind of social capital can be highly beneficial for the members, but it does not provide positive externalities or promote contacts and connections among groups. It is often used to protect mutual interests such as cartels or even criminal organizations. By contrast, bridging social capital is made up of weaker but denser social ties, which exist across different groups and contexts – an example would be relationships of mutual acquaintance and neighbourhood. Finally, linking social capital refers to horizontal ties and memberships that link the society to formal institutions, such as parties and political associations. These types and dimensions of social capital are discussed in the literature, and are also the features assessed in quantitative studies. The role of networks can change according to their nature – they can protect mutual interests, but also promote weak and wider connections, or links with formal and political institutions. By contrast, civic engagement and mutual trust entail societal features, and are thus typically related to bridging and linking social capital.

Hence, some a priori links between types and dimensions of social capital can be put forward, which in turn are likely to have effects on institutional and economic performance. This idea is summarized in the following table.

Types of social capital	Relative social capital dimensions	Economic and institutional outcomes
Bonding social capital	Networks	Improvements in members' standard of living and quality of life. No expected growth (no externalities) for the whole economy. Negative outcomes are possible.
Bridging social capital	Networks / social participation / civic engagement	Reduction of transaction costs and opportunism. Enhancement of cooperation and coordination.
Linking social capital	Networks / social or political participation / civic engagement / trust	Weak but dense and widely spread social ties further promote mutual trust among agents and between society and authorities, enhancing the functioning of institutions.

Table 1.2.1 - Social capital: types, dimensions and potential effects on economic performance.

If social capital is central to socio-economic outcomes, what is the mechanism at work? Aldridge et al. (2002) survey the most important effects that social capital is likely to bring about in the economy. Firstly, social capital enhances the dissemination of information; it lowers transaction costs, and provides for sanctions and informal contract enforcement. These features make social capital dimensions a potential factor in economic growth, because they directly affect relationships among individuals, among individuals and firms or even among firms. Secondly, social capital is found to reduce frictions in the labour market, and hence it is likely to foster employment by enhancing 'search and matching' mechanisms. Thirdly, as outlined by Coleman, social capital is highly correlated with educational attainment. Fourthly, social capital is linked to low levels of crime. Finally, social capital is likely to boost institutional performance, as described by Putnam et al.

In spite of these widely recognized benefits, the effects of social capital depend on the relation between its dimensions and contextual features. For example, the dimensions of social capital can be found to be more or less important according to the scale of analysis – for example, individuals, firms, communities, regions or nations (Table 8 in Aldridge et al. 2002: 28 – 29).

Thus, although the social capital literature provides a robust framework for empirical analysis, institutional and economic outcomes are not fully identifiable a priori. We know that certain types and dimensions of social capital, such as civic engagement and trust, are likely to promote growth.

Others, like networks, might only increase the standard of living of a limited number of people. But these are nothing more than hypotheses. If social capital is indeed context-dependent, empirical assessments, as well social capital measurement issues, will turn out to be pivotal points.

1.3 Measuring social capital

Van Deth (2008) surveyed the literature on social capital measurement and found four main measuring methods: (1) surveys and polling, (2) indicators drawn from official statistics, (3), community studies and (4) experiments. I will not consider community studies and experiments, as they are seldom taken into account in macroeconomic studies. As far as surveys and polling are concerned, Van Deth identifies potential shortcomings in the stress on 'perception', and in the fact that "the validity of indicators based on aggregated individual data obtained by surveys and polling methods is questionable for the conceptualization of social capital as a collective good". By contrast, statistics can be used as 'objective' measures – crime rates, voting turnout, associational density and blood donations are anything but proxies of social capital, in that they already constitute part of its likely outcomes. "If social capital is defined by its functions, an evident lack of predicted consequences can be used as an indicator for the absence of social capital. However, we must consider that care is needed in using indicators of social dysfunction to measure changes in social capital, since the full range of causes of social breakdown is unknown: such approaches might confuse consequences with sources."

Surveys and other relatively objective measures are the tools of choice in current social capital research. For instance, Knack and Keefer use data that was collected via surveys, and organized in the World Value Survey database, which reports respondents' data aggregated by country. Guiso et al. use instead blood donations and voter turnout in referenda, which are likely to be exogenous. As well, recent work has made use of a fairly large set of proxies, drawn from both surveys and objective indicators, whose information has been filtered and reassessed by means of Principal Component Analysis[3] (Sabatini 2008). For obvious reasons, the few recent studies taking a more historical perspective have had to rely solely on objective measures. The extent of mutualism is usually captured by membership in groups as a share of population (Putnam et al. 1993). Other dimensions are proxied by readership of political newspapers (political participation)

[3] In a nutshell, PCA converts a set of given (and possibly correlated) variables in a subset which reduces the number of variables, makes them linearly independent and accounts for as much of the variability of the data as possible.

while trust can be proxied by crime levels, an approach that relies on the relationship between social capital and criminality (Nuzzo 2006).

Generally speaking, there seems to be a convergence in the way social capital dimensions are measured, although no shared framework exists among researchers. Flexibility has its advantages, however, and a researcher can employ different measuring methods that she considers suitable for the assessment of social capital features that are best explored in a specific context.

Historical statistics can also provide a good (and yet more complex) basis for proxying social capital dimensions. Measuring social capital consistently across Italy's regions becomes vital if we want to assess quantitatively its role in the growth and persistence of regional inequalities. Indeed, recent advances in the historiography of Italy's regional disparities point to social capital as a central feature of conditional convergence (or its lack thereof) among macro-areas of the country.

2 The historiography – past and recent trends

The problem of Italy's regional inequalities has drawn – and still draws – a great deal of attention from historians and economists (cf. Felice 2014 for an overview). The first tentative hypotheses on the origins and persistence of regional inequalities in Italy were based on qualitative studies. Early accounts explained the country's bifurcation through a variant of the core-periphery model (cf. Zamagni 1978 for an overview). According to this view, the North exploited the southern regions by draining their resources and capital, which were in turn used to strengthen economic fundamentals and foster the take-off of the northwest.

Cafagna (1989) strongly rejected the dependency view, introducing the idea of an intrinsic "dualism". He maintained that the way public revenues were actually spent could not really have fostered regional differences. Public expenditure in the two macro-areas was roughly the same. Furthermore, it was mainly designed for maintenance in the northern regions (an imperative in order to preserve the existent stock of infrastructure) while it was allocated to build new social overhead capital in the southern regions. Additionally, the North and the South had almost no complementarity. Firstly, the South could not provide sufficient demand for the North's production (because of low average income and large income inequalities). Secondly, the factor markets were also highly independent – the labour force in the northern regions was certainly sufficient to meet the rising demand, and it did not need any further supply (Toniolo 1988). Cafagna proposed a

new interpretation of regional inequalities based on local 'immobile' factors. He put forth a specific triad – natural resources, human capital and institutions – which in turn was likely to attract and concentrate more mobile factors of growth, like capital and labour (Felice 2010).

With the exception of preliminary attempts by Zamagni (1978) and Esposto (1992), these hypotheses have been uncorroborated by estimates of income at the regional level. Long-term estimates of income have been put forward only recently. Although figures on regional disparities in per capita income after unification vary (Fenoaltea 2006, Daniele and Malanima 2013, Felice 2011), the evidence suggests that income in the south of Italy was no more than 15 percent lower than in the northern regions.

These data must be carefully assessed when trying to understand the extent of Italy's regional inequalities, as income-based measures cannot account for structural differences in regional capabilities. Social overhead capital, infrastructures, human capital, financial development and the pattern of urbanization cannot be read through the lens of regional per-capita GDP and other composite indicators. Therefore, although the new and more reliable estimates of GDP help us in tracking the diachronic evolution of regional disparities, it is worth stressing that the North and the South were already characterized by marked structural differences when unification took place in 1861 (cf. Felice 2007 and Felice and Vasta 2012 for an overview).

Recent hypotheses have explored the role played by 'ultimate' factors of growth (Acemoglu et al. 2001) like geography and institutions. Cafagna's original view, centred on immobile and mobile factors of growth, has been recently re-elaborated by Fenoaltea, who aims to explain growing regional inequalities through local features such as water resource endowments. By way of contrast, Felice (2012) has returned our attention to human agency, that is, human and social capital. Of course, these perspectives are not mutually exclusive. On the contrary, their complementarity might be highly beneficial for our task of understanding Italy's regional inequalities and their persistence until the present day.

Fenoaltea maintains that the North had an original advantage because of good endowments of natural resources, water above all, and human capital – a highly immobile factor in the early 19th century. In turn, they attracted capital and labour to a different extent, which ultimately led to large differences in regional economic performance. This hypothesis has gained momentum thanks to the rise of the New Economic Geography, the economic theory of which has been

applied to Italy's historical development – although no substantial effect of endowments or market potential has been found on the localization of industry and economic growth (cf. A'Hearn and Venables 2013, Missiaia 2013).

Felice (2010) has added social capital to the ultimate causes of growth identified by Fenoaltea. Although human capital has recently become more mobile, social capital and institutional efficiency are still immobile – and hence local – factors of growth. In this respect, the convergence experienced by the southern regions during Italy's economic miracle and their long-term divergence are two sides of the same coin. According to Felice, the pattern of divergence/convergence observed can be explained by combining the concept of social capital with that of 'passive modernization'. Felice claims that the South has partially caught up with the North thanks to mere external forces, and that its slump in recent decades is largely due to poor endowments of social capital and local institutions that are not able to foster socioeconomic development.

'Passive modernization' may be clarified by looking at income and other dimensions of well-being illustrated in Figure 2.1. As far as per capita income is concerned, a long-term trend of divergence can be observed from 1861 to the present day. By contrast, social indicators highlight a steady convergence between the northern and the southern regions of the country, an evolution due to the role played by the state in the provision of public goods such as education and health.[4]

[4] Unsurprisingly, although the north and the south of Italy converged in terms of literacy rates, results based on the OECD's PISA test still differ to a large extent.

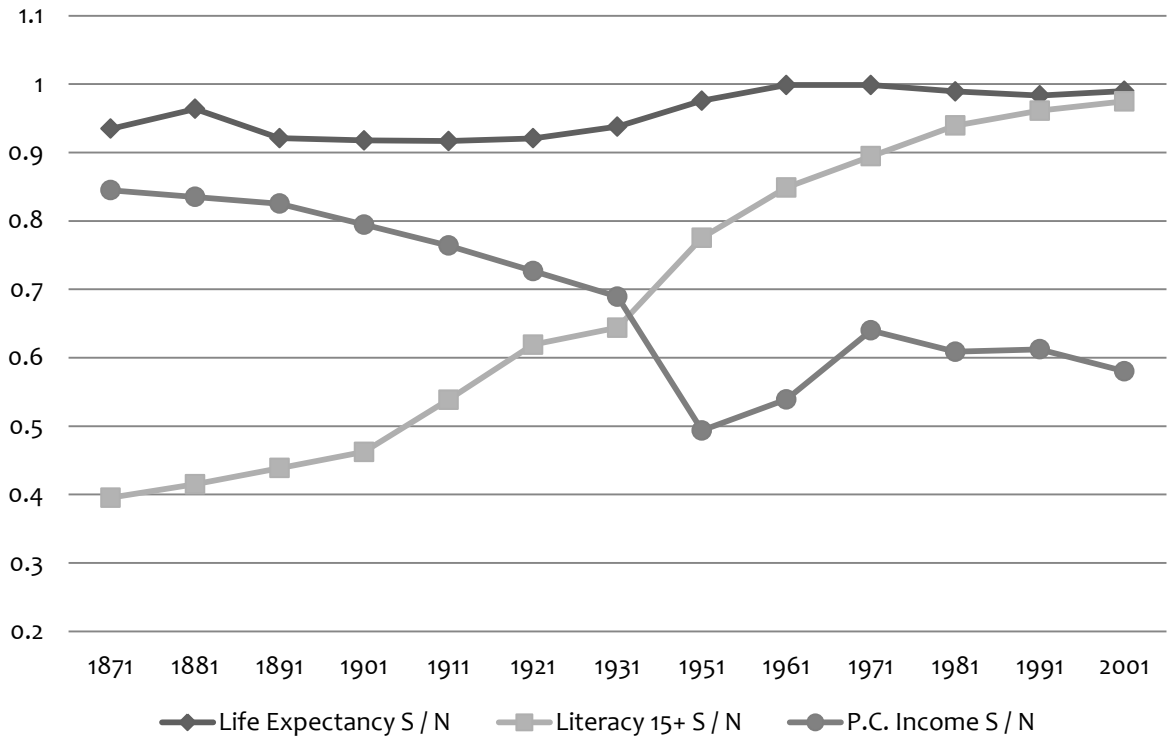

Fig. 2.1 – Dimensions of Human Development in South an Islands (S) as a percentage of North-Centre (N). Per Capita GDP, Literacy and Life Expectancy at Birth, 1871 – 2001.

Sources: Atella, Francisci, Vecchi (2011) for Life Expectancy; A'Hearn, Auria and Vecchi (2011) for Literacy Rates; Brunetti, Felice and Vecchi (2011) for income.

The South's convergence in per capita GDP during the years 1951 – 1973 may have been related to the extraordinary interventions implemented by the *Cassa per il Mezzogiorno*, an agency whose objective was the development of Italy's southern regions. Contemporary policy might have partially impacted on the southern economy and on its people's well-being, but it did not significantly alter its social and institutional features, upon which economic activity is grounded. Hence, when the international context suddenly changed in the 1970s – when large firms were set apart by post-Fordist means of production and when the state loosened its grip on the economy – the South's lack of autonomous initiative and auto-propulsive economic growth made it fall back again.

Why then, in spite of economic changes in the post-war period, did the South fail to converge? Notwithstanding its growing impact on the literature and historiography, the economic history of Italy has long neglected accounts based on quantitative estimates of social capital endowments. Thus, answering this long-standing and urgent question has proved to be difficult. A few

contributions have been made only since the early 2000s. The first quantitative studies on social capital across Italy's regions treated the late 19th and early 20th century.

Galassi (2001) exploits information on cooperatives in the years 1883 – 1926. He finds that economic cooperation in the South was hampered by low levels of trust, although he does not explore its determinants. In his account, trust looks like a structural feature embedded in society. Accordingly, it may be determined by poorly-specified environmental circumstances[5], or cultural factors such as the ones put forward by Putnam et al.

By the same token, A'Hearn (2000) investigates Italian cooperative banks at the end of the 19th Century. He examines the sharp decline of these institutions in the South after the banking crisis of the 1890s, in light of the fact that they were as successful as those operating in the north of Italy during the 1880s. According to A'Hearn, levels of generalized trust provide a good explanation. The author claims that cooperative banks in the southern regions faced a more mistrustful public. Hence, they had to rely less on deposits and on different, riskier sources of financing. When the crisis occurred, they were much more vulnerable than banking institutions in the North, which drove them to collapse.

After research on social capital in historical perspective lay dormant for a few years, Nuzzo (2006) put forth tentative indicators of social capital dimensions – social participation, political participation and trust – across Italy's regions, which concerned benchmark years between 1901 and 2001. Nuzzo found that, although disparities in social capital endowments were notable, they tended to fade out over time, contrary to what the literature had generally claimed. Nuzzo's findings cast doubt on the view of social capital as the main factor driving the persistence of Italy's regional divide, although the convergence disclosed by the author's estimates is rather slow and incomplete.

Felice (2012) stretches Nuzzo's work further back in time, as he obtains social capital estimates for 1871 and 1891. By doing so, he is able to parallel regional trends in social capital with new regional estimates of per capita GDP and human capital, in order to shed light on the role of different conditioning factors of growth in Italy's long-term regional divergence. His findings point to a major role of human capital up to the Second World War. By contrast, social capital is found

5 Exogenous factors such as climate and its effect on the expected payoff of economic activities (e.g. in agriculture) may matter for determining trust.

to be significant only in the years following the fall of Bretton Woods and the reorganization of the world economy after the oil shocks. Felice suggests that this result might be due to the growing importance of information flows, networks, trust and enforcement in the modern economy, features which are greatly enhanced by social capital.

Despite their pioneering importance, these new studies are marked by several shortcomings. Nuzzo does not rely exclusively on historical records, and the assumptions underlying his estimates are quite tentative, as are some of the proxies implemented by his analysis. By the same token, although Felice makes use of primary sources, he does not completely reframe the research, so that 19th century estimates of social capital are still largely dependent on Nuzzo's figures (Felice 2012: 34). Even more importantly, the conclusions reached so far are based on an aggregate, synthetic index of social capital, which mixes features that are likely to have contrasting effects on income growth. My work tackles these issues directly, and integrates the picture provided so far by focusing on Italy's Liberal Age (1861 – 1914).

3. Measuring social capital across Italy's regions, 1861 – 1914

I consider the three main dimensions of social capital. This choice stems directly from Putnam et al.'s work, although further qualifications and refinements have been provided by the line of research on the topic. As I outlined in the first section of the paper, social capital theory differentiates nowadays between networks (mutualism), social participation (civic engagement) and trust. While the role of the first dimension is context and type-dependent, civic engagement and trust are widely considered important factors of economic growth and development across countries and over time.

3.1 Social participation, charity and giving

This section surveys the *opere pie* (charity institutions), my first source for assessing the dimension of social participation. It provides an explanation for the rationale behind this choice. I believe that, in spite of changes in the way the central government attempted to regulate the charity system, these institutions still represent the behaviour of diverse local communities.

The *opere pie* reflect a spontaneous interest in the public good, in that their presence was usually due to the decisions of private citizens (*testatori*) to donate part of their wealth for setting up charitable organizations. Additionally, the extent to which they were able to survive and pursue

their objectives was mainly due to spontaneous donations (*eredità*, *lasciti* and *donazioni*) made by other members of the same community. Hence, I expect to observe a higher level of social participation where the number and value of these donations was larger. One may consider the diffusion of the *opere pie* and the relative donations as the will to contribute to the solution of social issues, as poverty was considered at the end of the 19th century. This precise feature of autonomy also characterizes the *opere pie* in the long run, despite the state's frequent attempts to tighten its control.

When unification took place, the Piemonte charity regulation was simply extended to all the new regions. The first national law pertaining to the *opere pie* (August 3, 1862, which followed the first survey in 1861) did not affect their autonomy at all. The government probably wanted to avoid any head-on conflict with the Church (to which many of these organizations were linked); its limited budget probably represented a further deterrent towards any direct control. The law avoided interfering with the original scope of the institutions and their actual functioning, while it focused on administrative instructions to local councils (*province*, *comuni* and *prefetture*) in order to increase the efficiency of the system. However, the administrative apparatus itself was not really suitably prepared to exert its control over such a large number of institutions, and many prefectures simply could not implement the directives of the central government.

The successive changes in legislation also highlight the will to widen state control over the charity network. The *inchiesta* conducted in 1880 (and published in different volumes during the following decade) clearly showed that the *opere pie* had grown economically, but it still underscored their inefficiency in providing substantial assistance to the poor. Although the definitive results of the *inchiesta* were still far from being circulated (the last volume was published in 1897), a new bill draft was already proposed by Crispi, and it became effective on July 17, 1890. It introduced liability for chief administrators and tried to heighten the efficacy of state control.

However, the implementation of the Legge Crispi was rather difficult. Sepe (1999) argues that this radical intervention did not bring about the expected results, again because of the relative inadequacy of prefectures and local councils. Farrell-Vinay (1997) writes that, in spite of an

increase in the management expenditure by 30.3% from 1880 to 1900, the scheduled controls on the budgets did not really take place, and ineffectual expenditures did not completely fade out.[6]

The law promulgated on July 18, 1904 by Giolitti probably placed more emphasis on the administrative side, the real hurdle to be overcome. It created special provincial commissions, which were directly linked to a specific national council (*Consiglio Superiore di Assistenza e Beneficenza Pubblica*). Although the council managed to collect the accounts of the *opere pie* relatively rapidly, at the end of the Liberal Age the system was still far from efficient. Eventually, the Fascist government abolished the majority of institutions that had been established during the previous decades. Although the dictatorship seemed initially to take into account the need for a strong regulation of the charity system, the government loosened its control during the 1920s, a process which culminated in the Legge Federzoni, approved on June 17, 1926 (Fiori 2005: 218).

The history of the *opere pie* from 1861 up to the Second World War thus highlights the relevance of this source for building long-term indicators of social capital, in spite of the many changes in legislation: the autonomy of these charitable institutions is a fascinating feature for the understanding of social capital differences.

Social participation is possibly the most interesting dimension of social capital. In fact, it constitutes one aspect of 'civicness', which, since Putnam et al. (1993), has been emphasized. Another form of charity, that is, blood donation, is nowadays a well-established proxy for social capital (cf. Guiso et al. 2004). By the same token, monetary and other forms of giving are likely to proxy the extent to which people are willing to participate in societal activities. However, it is notable that although blood donations can be seen as a largely exogenous factor, several problems may affect a proxy of social participation based on giving: First, average level of income, rather than social capital, may drive donations; second, income inequalities may also affect the type and amount of donations.

As far as average income is concerned, per capita donations cannot be used as a proxy for social participation and civic engagement. Per capita GDP must be taken into account. This can be done by using the ratio between regional donations and regional (real) income. Although data on monetary donations are in current Lire (the Italian currency), inflation during the late 19th century

[6] My findings, by contrast, show that the efficiency of the *opere pie* increased between 1880 and 1900. At this stage, however, it is hard to establish causal links between this change and the Legge Crispi.

and before the Great War was oscillating around a constant mean[7], so we can directly combine these data to obtain an index of social participation: regional donations to charity institutions as a share of regional GDP.

Donations % GDP	**1871**	**1881**	**1891**	**1901**	**1911**
Piemonte	0.07%	0.22%	0.19%	0.23%	0.14%
Liguria	0.08%	0.25%	0.12%	0.18%	0.14%
Lombardia	0.04%	0.20%	0.08%	0.13%	0.12%
Veneto	0.07%	0.10%	0.07%	0.09%	0.09%
Emilia	0.04%	0.07%	0.06%	0.07%	0.07%
Toscana	0.02%	0.07%	0.08%	0.05%	0.05%
Marche	0.05%	0.07%	0.05%	0.05%	0.05%
Umbria		0.05%	0.04%	0.02%	0.02%
Lazio	0.03%	0.08%	0.00%	0.06%	0.04%
Abruzzi e Molise	0.00%	0.01%	0.02%	0.04%	0.02%
Campania	0.03%	0.07%	0.05%	0.02%	0.04%
Puglia	0.01%	0.12%	0.06%	0.09%	0.04%
Basilicata		0.01%	0.04%	0.04%	0.01%
Calabria	0.00%	0.01%	0.01%	0.08%	0.04%
Sicilia	0.01%	0.02%	0.02%	0.05%	0.04%
Sardegna	0.00%	0.06%	0.14%	0.04%	0.03%

Table 3.1.1 - The index of social participation and civic engagement (donations to the *opere pie* as a share of GDP), 1871 – 1911

A further criticism related to the relationship between donations and per capita income might be that the marginal amount of donation changes as the level of income increases. Although this sounds quite reasonable for the present day, it was probably not the case in the 19th century (Figure 3.1.1). In fact, the distribution of donations across regions does not change much over time, and the index displays practically no convergence in 1881 – 1911, notwithstanding the much faster growth registered by the north-western regions compared to the south and centre of the

[7] It is also worth noting that weighting the series by inflation would change the national datum compared to GDP. As we do not have precise estimates of the regions' living costs the regional relative values of the index – the figure we are interested in – would not change.

country. Although this is a preliminary answer, data suggests that the marginal value of donations with respect to income does not affect the validity of the proxy.

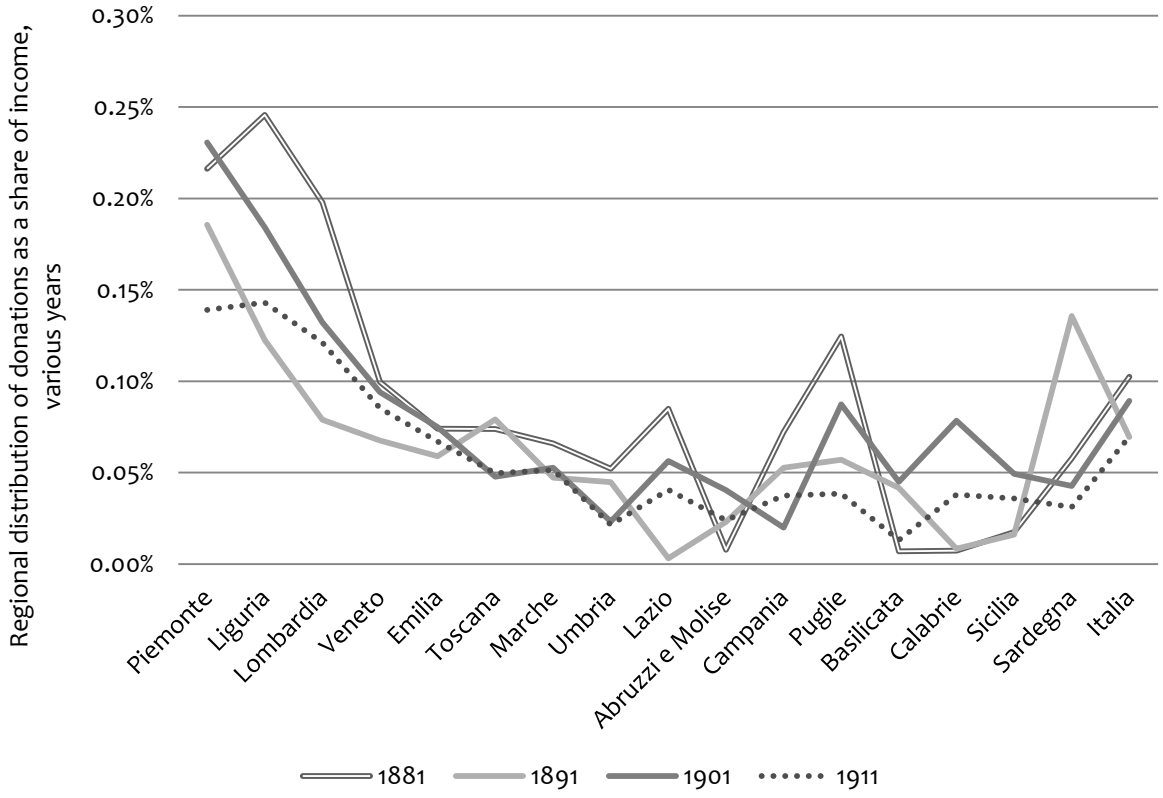

Figure 3.1.1 - The persistence of donations as a share of income across Italy's regions, 1881 – 1911.

The relationship between charitable giving and inequalities is more difficult to assess, and its sign is not clear a priori. If all the people had the same income (perfect equality), there would probably be no donation. As inequalities grow, donations should increase; yet, when inequalities are extreme, few donations of larger amounts are expected. This is the pattern we expect from the data.

Figure 3.1.2 shows that the relationship between the number of donations and their average value is indeed negative, but very weak. This suggests that income inequalities did not substantially affect donations, although more research is needed before we can draw a clear conclusion.

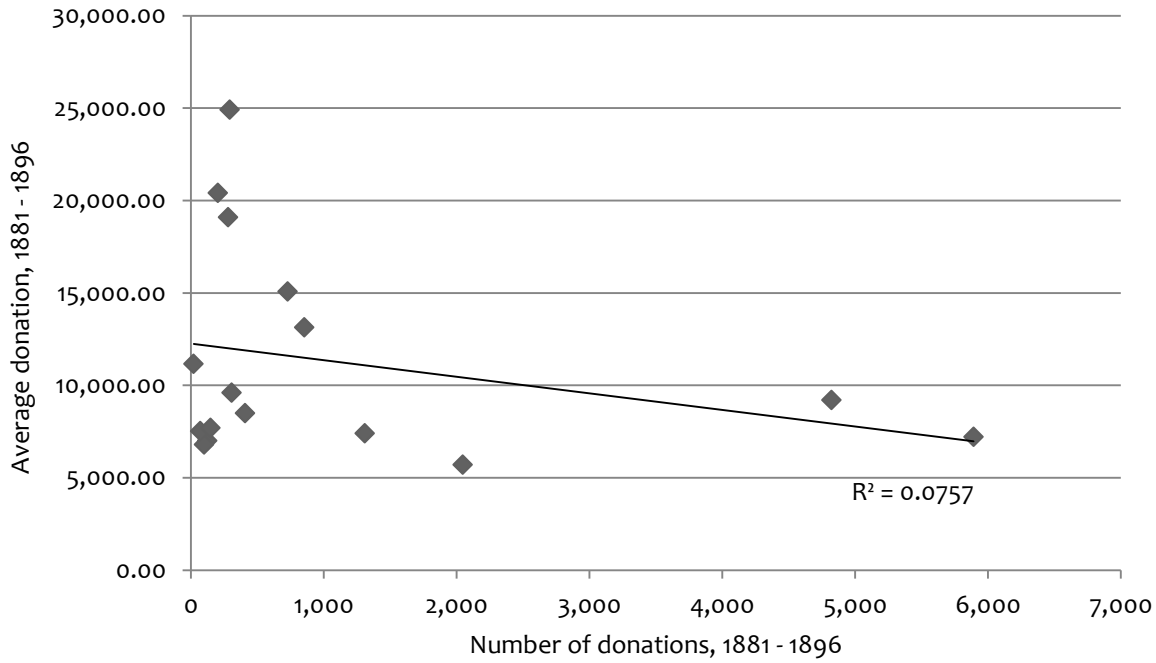

Figure 3.1.2 – Average donation and number of donations, 1881 – 96.

For these reasons, the index presented is considered a good proxy of social participation. Furthermore, the pattern revealed is confirmed by using different sources and data concerning charity. For example, charitable expenditure as a share of the *opere pie*'s budget depicts large differences among Italy's regions in 1880 – and to a lesser extent in 1900, a result achieved thanks to the more effective enforcement brought about by Crispi's reforms. However, donations to charitable institutions were not affected by the new legislation, and indeed their pattern across regions did not change. Although the evidence for 1861 concerns a different indicator, it confirms that the southern regions were endowed with a more negative type of social capital, as the amount of money spent for each beneficiary might have been connected to patronage networks (see appendix).

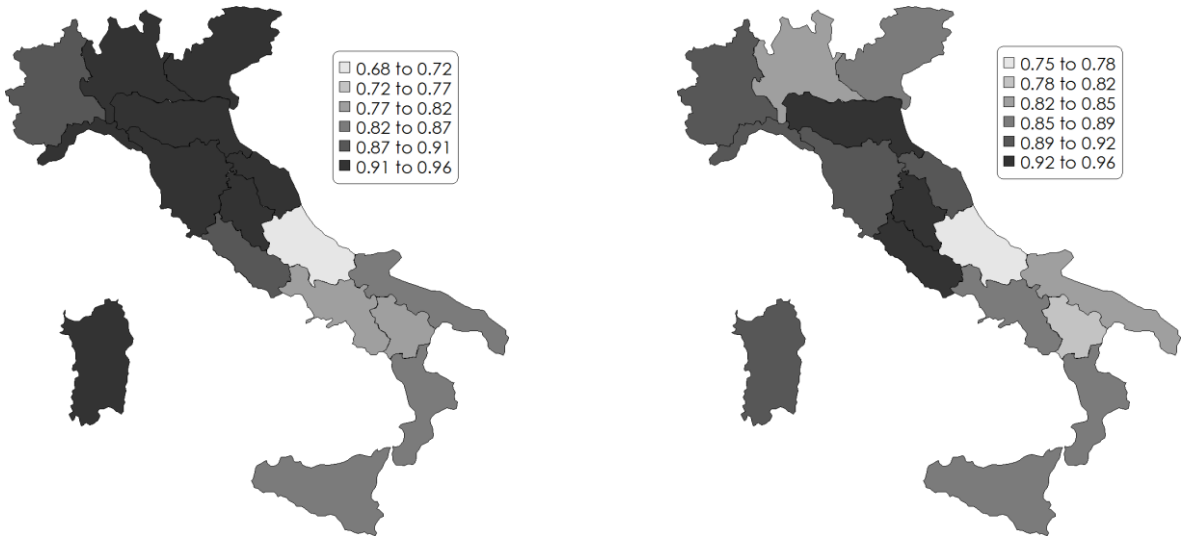

Figure 3.1.3 - Effective charity expenditure as % of resources available (net of administrative expenditure) across Italy's regions, 1880 and 1900.

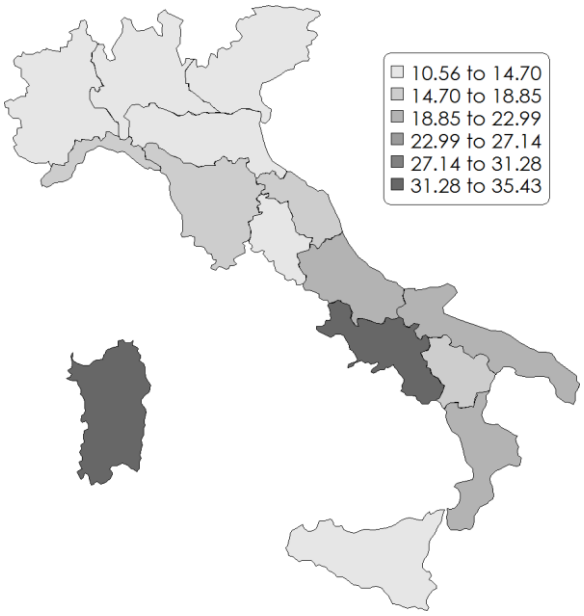

Figure 3.1.4 - Sums effectively spent on charity for each beneficiary, 1861.

3.2 Mutual aid networks

The proxy for networks is based on data pertaining to Italy's mutual aid societies. This source provides a good basis for the understanding of mutualism and membership in groups. The role of mutual aid societies in developing (and representing) social capital across Italian regions is quite mixed. Mutual aid institutions were certainly important for the development of civil society and

cohesion. As Tomassini (1996) puts it, "the societies were a school of political democracy with repercussions that had a major impact on the integration of the populace into a liberal political system" and that "[…] mutualistic activities that encouraged socializing were particularly widespread. In fact, the predominance of the simple economic organization previously described did not intrinsically limit functions that enhanced social cohesion". This is attested to by side-activities by mutual aid societies, which Tomassini describes in depth – such as educational activities, the provision of small public libraries, excursions, cooperatives and cafes. If, in this respect, mutual aid societies are indeed a good proxy for social capital, Tomassini implicitly warns us about another aspect that may bias our assessment of social networks endowments across the regions of Italy.

Mutual aid societies in Italy had a precise economic and institutional role. They were set up to protect workers' interests. Their activities surely influenced the surrounding civil society, but their primary aim was the provision of benefits to members, as well as to provide support for the growing socialist movement. This fact produced two major caveats. First, mutual aid societies depended on the extent and strength of the liberal state. As Tomassini puts it, before 1848 and the adoption of liberal constitutions in all the pre-unification states, mutual aid societies were rare in Italy. Not by chance, the first wave of growth was registered by the Regno di Sardegna (Piemonte, Liguria, Sardegna) between 1848 and 1859, as it was the first area to enhance a liberal constitution. Unsurprisingly, the turning point was the unification that occurred in 1861. From then on, mutual aid society growth was not constrained by institutional frameworks, and began to be related to other factors – in particular, economic growth. This is a fundamental point in our analysis, as we aim to measure the impact of social capital dimensions on economic growth across Italy's regions. In order to do so, data on aspects that are possibly independent of other features should be used, to avoid issues of reverse causality.

Mutual aid societies operate on behalf of their members. Thus, their presence might be largely driven by economic performance, but also by the fact that they are not an expression of civicness and good social capital; instead, they may represent bonding social capital – strong and close ties that provide benefits for members, but no positive externalities for the surrounding society. Thus, many aspects must be taken into account in the use of mutual aid as a source for studying social networks across Italy's regions.

I make use of the source Tomassini has explored only at the national level, which is a statistic of mutual aid societies published in different years between 1862 and 1912 (see data appendix). The first three benchmark years (1862, 1873 and 1885) report a wide range of information, which can be partially retrieved in the year 1895. For the 20th century, data become scarcer and more focused on officially acknowledged societies – those which allowed themselves to be regulated by the new Labour Law of 1886 (Legge 3,818 of April 15). The index we can draw from the benchmark years available is a proxy often used in the literature: regional mutual aid members as a share of regional population. The figures were not directly available for 1902 and 1912, as they reported only members of legally recognized societies. A procedure for their estimate is outlined in the appendix.

M.A. members / population	**1862**	**1873**	**1885**	**1895**	**1902**	**1912**
Piemonte	11.87	14.98	34.41	55.23	76.33	99.08
Liguria	3.47	6.14	11.32	36.88	112.45	213.44
Lombardia	7.06	9.49	23.34	48.53	51.29	64.20
Veneto		7.70	16.66	28.33	38.18	50.62
Emilia Romagna	7.90	13.88	25.56	35.55	86.09	103.62
Toscana	8.67	18.59	22.52	44.56	55.57	83.39
Marche	6.97	13.21	26.15	40.92	70.21	118.26
Umbria	5.68	17.94	20.00	31.45	53.03	66.28
Lazio		11.08	19.65	38.67	21.65	39.47
Abruzzi e Molise	0.31	2.36	13.52	16.15	12.40	21.35
Campania	1.62	1.86	13.96	18.74	17.25	26.73
Basilicata	0.00	1.54	18.33	52.61	57.35	69.45
Puglia	0.60	3.24	16.19	4.75	3.64	4.43
Calabria	0.00	1.00	8.05	12.94	9.37	21.96
Sicilia	0.71	3.05	9.04	11.57	13.26	17.80
Sardegna	1.71	3.58	4.18	9.32	17.89	33.81

Table 3.2.1 – Mutual aid members as a share of population (thousands).

Notes: estimates for the years 1902 and 1912, see text.

Although the index shows a North-South gap, one may wonder if the disparities are due to the differences in social capital or the different extent of industrialization and political participation. In fact, the number of mutual aid members is strongly correlated with the number of voters for the

socialist and left-wing parties.[8] If one compares mutual aid members and the diffusion of socialist ideas through a simple ratio, the regional disparities in mutual aid membership outlined in the previous table disappear (figure 3.2.2). In turn, the success of socialism appears to be strongly correlated with industrial growth, which means the index should not be used in OLS regressions where the dependent variable is per capita GDP, due to the likelihood of reverse-causality bias (Figure 3.2.3). However, the extent of mutual aid membership can still be used as a measure of social-capital generator, because of the democratic values it promoted (cf. quotations from Tomassini in this section).

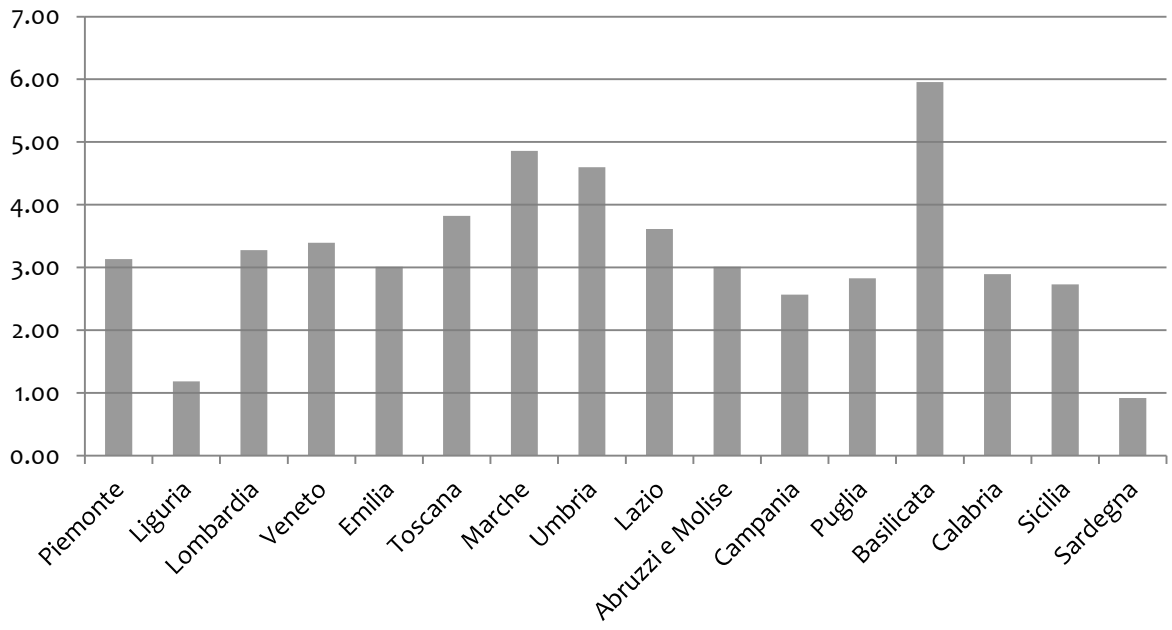

Table 3.2.2 – Ratio between Mutual aid members and voters for socialist and left-wing parties, 1885.

[8] Data on political preferences in national elections at the regional level are drawn from the *Compendio delle Statistiche Elettorali Italiane dal 1848 al 1934*, v. II. Italy, Ministero per la Costituente (1946). Stabilimento tipografico F. Failli.

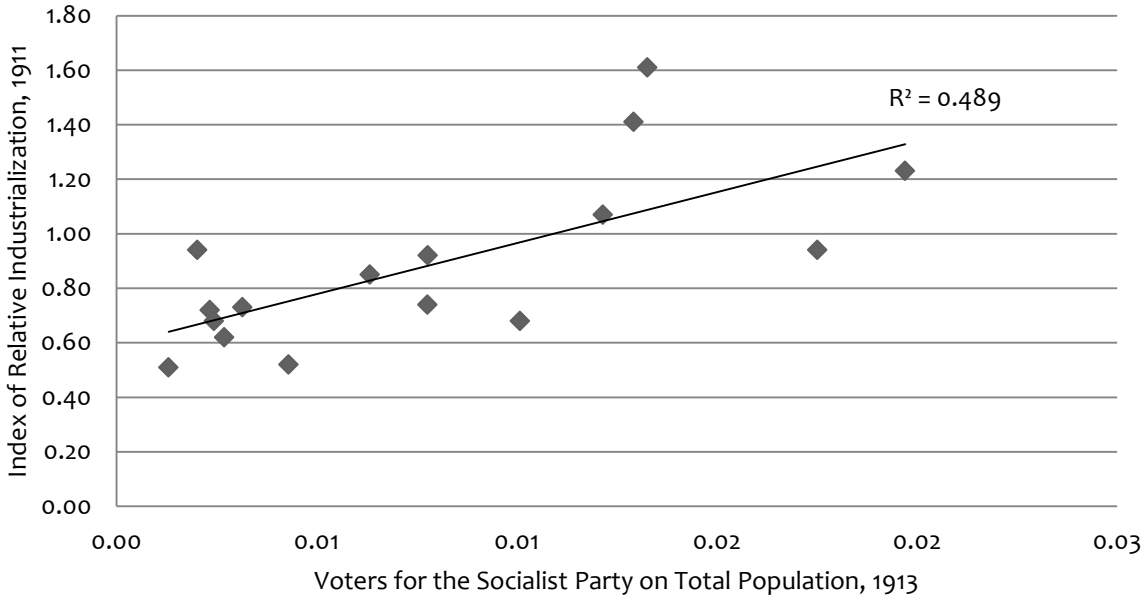

Table 3.2.3 – The correlation between industrialization and the diffusion of socialism in 1911 – 1913.

Sources: see Fenoaltea (2003) for the index of relative industrialization.

Interestingly, the procedure also shows that, when it came to protecting mutual interests, the southern regions did not fare worse than the northern, a finding that is consistent with social capital theory and the role of bonding networks. This hypothesis is backed up by different indicators that were drawn from the same sources, like members' contributions to the financing of mutual aid societies, or donations to mutual aid societies by the population (see appendix).

3.3 Trust – crime reports

As trust among individuals is usually assessed through surveys, economic historians must find a way to capture the same concept by using objective measures (i.e. outcomes) of trust. The most effective approach has been proposed by Nuzzo (2006), who relied on crimes and civil court proceedings in order to estimate trust. Nuzzo argues that the more the crimes and disputes, the less the trust among agents and members of a society. This approach is theoretically quite sound, yet the proxy suffers from some problems. For instance, criminality may be affected by economic growth and inequalities. Additionally, there might be measurement issues linked to under-reporting, or to the different degree of effectiveness and enforcement across regions (i.e. institutional efficiency). While the lack of consistent figures makes it difficult to tease out the effect of inequalities, we may compare economic growth and crimes. On the one hand, benchmark

figures from 1871 to 1911 show that, despite regional economic divergence, the distribution of crime rates across Italy's regions was stable throughout the late nineteenth century (Figure 3.3.1) – which casts doubt on the existence of reverse causality between economic performance and crimes.

When the issues of underreporting and enforcement are considered, we can better limit the bias. Curiously, Nuzzo takes into account violent crimes (penal law) in order to avoid underreporting – but then he considers civil court proceedings, which we expect to be highly affected by this problem. Additionally, by using figures on judged crimes, Nuzzo does not control for the likely different functioning of diverse regional judicial systems. Although formal rules were the same everywhere (apart from Tuscany until 1890, as the appendix outlines) social rules might still have driven the features of a judicial system (cf. Di Martino 2011). In order to reduce the importance of the factors highlighted, only violent and major crimes prosecuted by means of penal law are taken into account, by drawing on reported cases instead of actual crimes in order to avoid further bias due to diverse degrees of effectiveness within the same judicial system. The results are shown in the following table and graph. There is a clear-cut regional divide, which persists from 1871 to 1911[9].

[9] 1881 figures are interpolated, notwithstanding the availability of data. For reasons see the appendix.

Crime reports, Italy = 1	1871	1881 (Lin. Int.)	1891	1901	1911
Piemonte	0.70	0.59	0.48	0.59	0.53
Liguria	1.03	0.97	0.92	0.81	1.52
Lombardia	0.66	0.52	0.39	0.52	0.48
Veneto	0.43	0.44	0.45	0.48	0.47
Emilia Romagna	0.74	0.63	0.53	0.55	0.47
Toscana	1.23	0.88	0.52	0.58	0.59
Marche	0.99	0.91	0.84	0.79	0.70
Umbria	0.99	0.91	0.84	0.79	0.70
Lazio	2.04	1.81	1.57	1.53	1.80
Abruzzi	1.53	1.56	1.58	1.52	1.32
Campania	2.05	1.92	1.80	1.83	1.99
Puglia	1.16	1.33	1.50	1.50	1.47
Basilicata	1.57	1.59	1.60	1.37	1.33
Calabria	1.86	2.02	2.18	1.77	1.70
Sicilia	1.10	1.30	1.50	1.40	1.37
Sardegna	1.20	1.18	1.17	1.09	1.12

Table 3.3.1 – Crime reports (per 1,000 inhabitants) against people and properties,[10] 1881 – 1911. Italy = 1.

[10] The crimes taken into account are, in more detail: (1) violence and resistance against public authorities, (2), intentional homicides, (3) intentional injuries and (4) robberies, extortions and blackmails. The same flags are used to collect 1881 data for which, however, the penal law and related paragraphs were different.

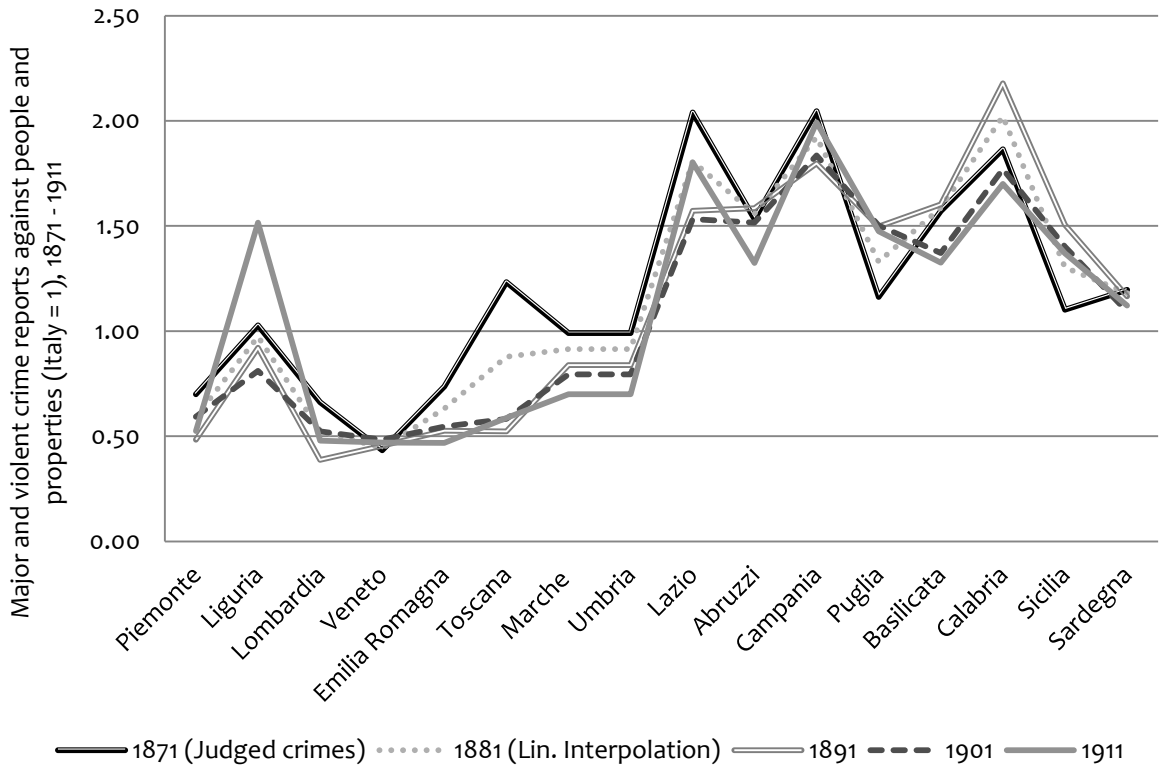

Figure 3.3.1 - Distribution of an index of crime reports across Italy's regions, 1871 – 1911.

The data demand qualification. Liguria is clearly an outlier. The spike of crimes characterizes Liguria for all the benchmark years considered, although the rise in 1911 might be due to some particular contingency, for example, the growth of Genoa as an important port and a hub for Italy's growing industry and trade. The value registered by Tuscany up to 1891 might be due to the different penal code employed from 1861 to 1890. Finally, the southern regions score higher than all the others, with peaks relative to regions where a large share of the population lived in big cities, for example, Roma in Lazio (which is actually in the centre of Italy) and Napoli in Campania. As a final check, we ought to consider that these figures are highly consistent with today's data on crime across Italy's regions.

Thus, a preliminary analysis of the dataset suggests that social capital was highly persistent across regions. There is no sign of convergence in the Liberal Age (1871 – 1911), a finding which may be at odds with Nuzzo's evidence of a steady (though slow) convergence across regions in the 20th century.

4. Data analysis – conditional convergence

I aim to understand whether social capital dimensions were determinants of economic growth across Italy's regions in the years 1871 – 1911. A simple model of conditional convergence (cf. Todaro 2006 and Thirlwall 2006) tests the significance of social capital together with two other factors – natural resources and human capital – that recently have been deemed to be pivotal to Italy's economic development.

This paper does not rely on a broad set of explanations drawn from the economic literature. Instead, the factors tested are backed up by qualitative accounts, and put forward by the historiography of Italy's long-term development. This is so that the analysis can focus on the triad of immobile endowments originally set forth by Cafagna: water resources, human capital and social capital dimensions.

Formally, the model used is the following:

$$\Delta y_{i_{t+1-t}} = \beta_0 + \beta_1 y_{i_t} + \beta_2 X_t + \beta_3 \partial_i + \varepsilon$$

where the dependent variable is the *average annual rate of growth* of per capita GDP from year t to $t+1$, y_i is the *level* of per capita GDP in t and X_i is a vector that includes human capital, and different dimensions of social capital, which will change according to the specification adopted. ∂_i refers to regional Fixed Effects, which capture the availability of water resources and other time-invariant unobserved factors. The index of human capital is obtained from Felice (2012).

β_1 is expected to be negative and significant, which means that different Italian regions converged only as far as they share similar structural features. The coefficient of social capital dimensions, human capital and resource endowments should be all positive – as larger endowments lead to better capabilities to support sustained economic growth. The dimensions of social capital are tested separately. Therefore, the coefficient of 'networks' might well turn out to be negative, for the reasons described in the previous sections. There are no expectations about the significance of these coefficients, although long-term analysis has already shown that human capital was likely to play an important role (Felice 2012). A summary of the variables included in the model is provided by Table 4.1.

Variable	Min.	Max.	Mean	St. Dev.	CV
Growth Rate (t+1 – t)	-0.01723	0.037573	0.008676	0.010688	1.231944
Log of P.C. Income	5.736683	6.657487	6.128713	0.22367	0.036496
Adult Literacy Rate (Italy = 1)	0.388889	1.802806	0.881575	0.415701	0.471544
Index of Networks (Italy = 1)	0	2.740115	0.906089	0.642313	0.708885
Social Participation (Italy = 1)	0	2.674776	0.871697	0.706476	0.81046
Index of Trust (Italy = 1)	0.459053	2.578341	1.100669	0.559367	0.508206
Infant Mortality Rate (Italy = 1)	0.725189	1.220182	0.93245	0.116111	0.124523

Table 4.1 – Summary statistics, 1871 – 1911.

Table 4.2 shows the results. Social capital does not stand out as major determinant of the regions' growth in the period 1871 – 1911. Unconditional convergence seems to hold across regions in the years 1871 – 1911 (Column 1). When conditional convergence is modelled by including social participation as a dimension of social capital, none of the factors put forward by the literature turns out to be statistically significant, other than the negative impact of infant mortality (2). When trust is used instead of social participation, the estimates improve and social capital turns out to be statistically significant with a positive effect, as expected (3).

Y = p.c. GDP growth $[(t+1)-t]$	(1) Uncond. Conv.	(2) Cond. (SP)	(3) Cond. (Trust)	(4) SP 2SLS	(5) Trust 2SLS
Log of p.c. Income	-0.0372**	-0.0411**	-0.0476**	-0.1269	-0.0662**
	(0.0206)	(0.0325)	(0.0173)	(0.5491)	(0.0113)
Adult Literacy, Italy = 1		0.0057	0.0147	0.4060	0.1943**
		(0.9085)	(0.7705)	(0.5189)	(0.0107)
Social Participation, Italy = 1		0.0006		0.1961	
		(0.8834)		(0.6376)	
Mutual Aid Networks, Italy = 1		-0.0016	-0.0007	0.0206	-0.0016
		(0.7209)	(0.8626)	(0.7173)	(0.7822)
Infant Mortality, Italy = 1		-0.0299***	-0.0295***	-0.1121	-0.0132
		(0.0024)	(0.0023)	(0.6252)	(0.4208)
Trust, Italy = 1			0.0103*		0.0327**
			(0.0783)		(0.0358)
Constant	0.2368**	0.2845***	0.3045***		
	(0.0170)	(0.0058)	(0.0025)		
Observations	64	64	64	64	64
Number of Regions (FE)	16	16	16	16	16
Adjusted R-squared	0.1195	0.1432	0.1725		

Robust p-values in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4.2 – Second-stage regression, panel data, 1871 – 1911.

However, potential problems linked to reverse causality may affect the estimates, due to the nature of the indices of social capital discussed in the previous sections. Human capital may also be directly affected by per capita GDP and economic growth. Therefore, both literacy and social capital (social participation and trust) have been instrumented. Human capital is instrumented by using lagged attendance of primary school classes during a summer month (May). This latter is highly correlated with adult literacy. but unaffected by the dependent variable: GDP growth between t and $t+1$ is not likely to influence school attendance in $t-1$. Finally, school attendance in $t-1$ should affect GDP growth only via literacy. The same considerations apply to the instrument used for social capital, that is, the lagged number of mutual aid members as a share of population. First-stage regressions show the validity of the instruments when trust is used as an index of social capital, while they are less effective in identifying the equation of conditional convergence if social participation is used. The first stage is shown below (Table 4.3). The instruments turn out to be strong enough when the endogenous regressors are literacy and trust; the model is correctly identified, according to post-regression diagnostic tests performed.

First-stage regression	(1) ALR	(2) Social participation	(3) Trust
L. attendance primary schools (May)	0.1913***	-0.0540	0.9136***
	(0.0038)	(0.9300)	(0.0056)
L. networks (Mutual Aid), Italy = 1	0.0412	-0.1020	-0.3445***
	(0.1109)	(0.5326)	(0.0075)
Mutual aid networks, Italy = 1	0.0196	-0.1424*	-0.0471
	(0.2976)	(0.0906)	(0.6902)
Infant Mortality, Italy = 1	-0.0421	0.6021	0.3127
	(0.3963)	(0.1918)	(0.2237)
Log of p.c. income	-0.0880	0.4171	0.0746
	(0.3849)	(0.5517)	(0.7591)
Constant	1.3307**	-2.0021	0.3438
	(0.0415)	(0.6328)	(0.8160)
Observations	64	64	64
Number of regions (FE)	16	16	16
Adjusted R-squared	0.2301	-0.0221	0.4265

Robust p-values in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4.3 – First-stage regression, panel data, 1871 – 1911.

Notes: endogenous regressors = Adult literacy , social participation and trust. IVs = lagged value of primary-school attendance rates in May, and lagged values of the number of mutual-aid members as a share of total population. The diagnostic test shows that the model is identified, and that the instruments are strongly correlated with the endogenous variables.

The negative sign of the coefficient of lagged mutual-aid memberships may be due to the panel structure of the data. In fact, the two variables are characterized by a positive correlation across regions, as expected: ρ is equal to +0.32 in 1871 and ranges between +0.60 and +0.70 in 1881, 1891 and 1901. However, trust and mutual aid are negatively correlated over time, as Figure 4.1 below clearly shows. The negative sign in the first stage may be due to this pattern: if the latter effect prevails, the panel-data model may be misleading. This is in fact the case: the level of trust in the northern regions went down slightly between 1871 and 1901 relative to Italy's average, while it remained constant in the southern regions. At the same time, mutual aid memberships grew in the North to some extent, but went down in the South. This is the effect captured by the coefficient of mutual-aid membership in the first stage.

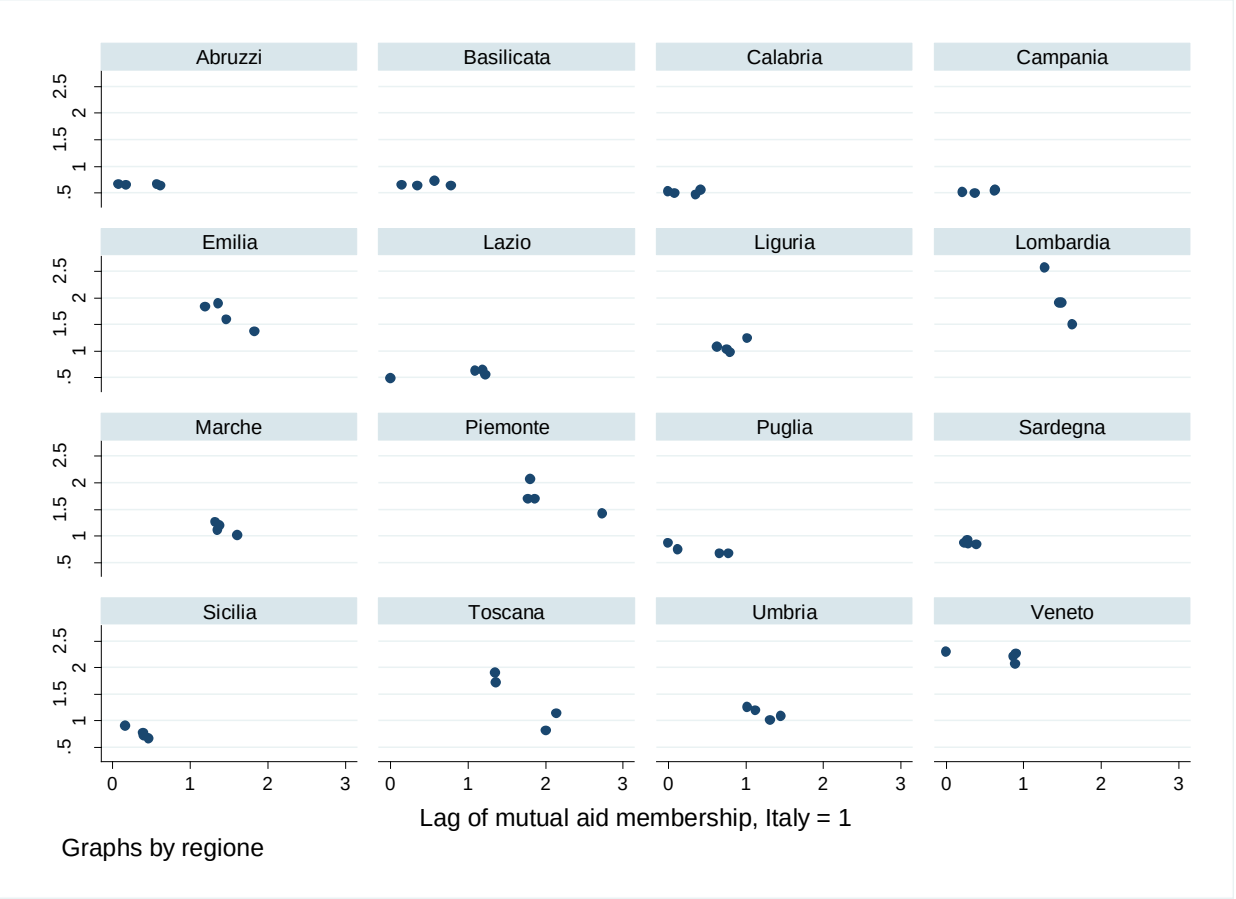

Figure 4.1 – The negative correlation between trust and lagged mutual-aid memberships over time.

Column (5) in Table 4.2 shows the results. The second-stage estimates have the expected signs, and reinforce the findings provided by OLS panel-data model of conditional convergence: trust has a significant effect on economic growth throughout Italy's Liberal Age. However, the magnitude of the coefficient is very small, compared with that of human capital – the latter being six times larger. All in all, the evidence casts doubt on the direct effect of social capital on economic growth in the years 1871 – 1911.

5. Conclusions

This paper has provided the first quantitative and consistent estimates of social capital dimensions for Italy's Liberal Age. Some of the indicators presented glance backward to 1861, and confirm large disparities across regions. This work has also tested different features of social capital together with the main factors underscored by the historiography of Italy's regional divide – human capital and time-invariant factors captured by FEs, like the availability of water resources –

in a simple econometric model of conditional convergence (1871 – 1911). Although these results should be seen as preliminary, recent findings provided by long-term analyses are largely confirmed. Human capital retains its primacy as a factor of economic growth in Italy's Liberal Age. However, this study has shown that different dimensions of social capital might have had a role as well. The qualitative evidence provided has shown that social participation – in the form of charitable giving and the diffusion of charitable institutions, Italy's *opere pie* – was an important feature of human and socioeconomic development. However, the econometric analysis does not identify this dimension as significant for economic growth. Consistent with the literature on social capital, workers' mutualism does not exhibit any correlation with economic growth once regional disparities in industrialization and the diffusion of socialism are controlled for. If this aspect had any effect on growth, this was likely to be negative. By contrast – and in line with a series of other studies on the topic – trust is found to be a significant explanatory factor of regional income growth before the Great War, but its coefficient is three times smaller than that of human capital. These findings hold when endogeneity is taken into account by implementing a 2SLS panel data analysis, and thus suggest that social capital might have shaped the economic destiny of Italy's regions in the late 19th century, but not as much as human capital did.

Given these results, the next paper seeks to shed light on the determinant of human capital accumulation in the period 1861 – 1936, by looking at Italy's educational system and policies, and their influence of the development of primary schooling.

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MAIC, Direzione Generale della Statistica (various years, 1882 – 1912), Bilanci Comunali

MAIC, Direzione Generale della Statistica (various years, 1863 – 1913), Statistica delle Società di Mutuo Soccorso

MAIC, Direzione Agricoltura (Regio Corpo delle Miniere 1881), Notizie Statistiche sull'Industria Mineraria in Italia dal 1860 al 1880.

Data Appendix and methodology

This appendix presents the sources and data discussed in the paper. It displays the full dataset for each dimension of social capital, investigated thanks to primary sources. It outlines the methodology implemented in order to overcome difficulties linked to data comparability, missing values and estimation. The first part focuses on the dimension of civic engagement and social participation, the second on that of networks and the third on trust. The fourth section reports a summary of secondary and other primary sources linked to other kinds of data, such as regional GDP and human capital.

1. Social participation

The index of social participation and civic engagement is based on a series of donations to charitable institutions (the *opere pie*). Data on donations are available yearly from different editions of the A*nnuario Statistico Italiano*, yet the series is severely affected by missing values. Generally, the figures are available from the 1860s – the first year depending on the region – up

to 1875. The series start again in 1881 and, depending on the region, is truncated somewhere between 1885 and 1896. From there a large gap affects the data, until 1911 when the figures become available again.

The index of social participation is built by relying on benchmark years. A five-year average following the benchmark year concerned is used. For example, when the index focuses on 1871, the mean value of donations for the years 1871 to 1875 is taken into account. This kind of index can be obtained directly for the years 1871, 1881 and 1911, for which data are fully available. For 1891, the index can be constructed only for four regions – Abruzzi, Puglia, Basilicata and Calabria – while for Emilia Romagna, Marche, Lazio and Campania it can be constructed by relying on just one figure instead of the five-year mean value. A different source provides some kind of alternative information that can be used in order to proxy donations to charity institutions. In fact, data on the municipalities' balance sheets[11] report figures on charitable expenditures by the city councils, and aggregated by region. If we compare this datum (percentage of total expenditure) with total regional donations in 1881 and 1911, we see that the two ratios are highly correlated (Figure A1.1).

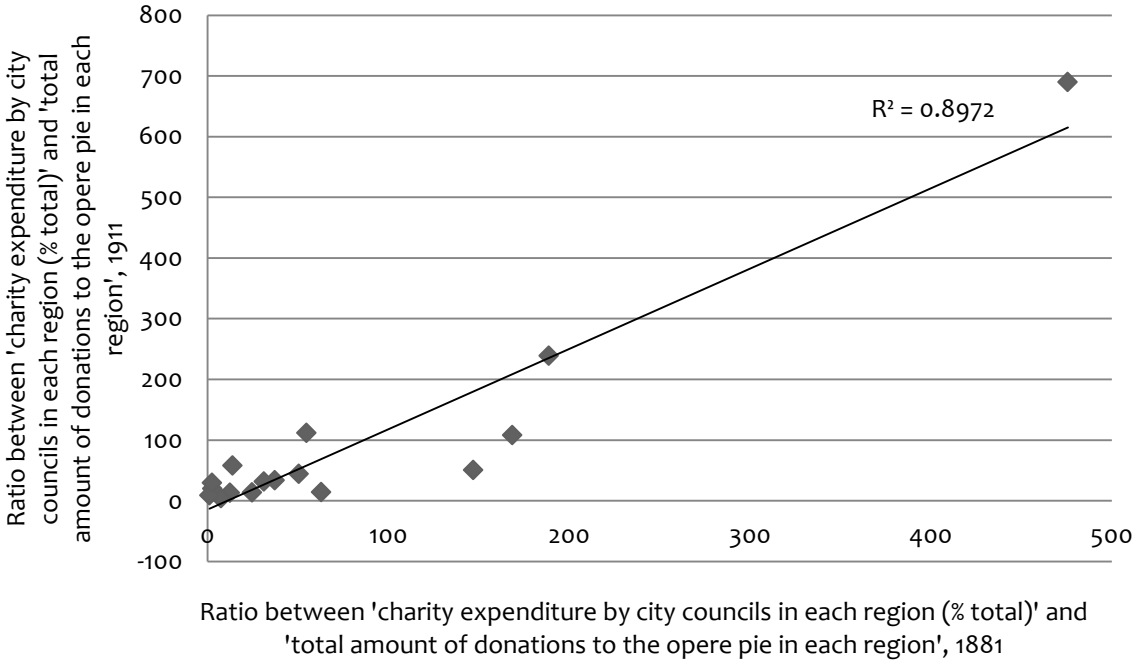

Figure A1.1 - The positive relationship between charity expenditure by municipalities and donations to the *opere pie*, by regions, in 1881 and 1911.

[11] The source is the *Bilanci comunali e provinciali*, which are available from 1882 to 1899 and for the year 1912.

In the scatter plot, the high degree of correlation seems to be driven by an outlier. Yet, if we drop this observation a quite high correlation remains, with R^2 now equal to 0.60. Thus, this relationship is exploited in order to estimate the missing values for 1891 and 1911.

This procedure is used to provide a long-term picture of donations to charitable institutions as a share of income, whose index stretches from 1871 to 1911.

2. Networks

The analysis of mutual aid networks takes into account different benchmark years, namely 1862, 1873, 1885, 1895, 1902 and 1912. The number of variables that can be drawn from the surveys conducted in the first three benchmark years is quite large, while for the years 1902 and 1912 only the last two features among the following can be estimated:

- Members' contribution to the financing of societies[12]
- Amount of donations and other forms of giving to mutual aid societies
- Number of societies
- Number of members

It is also worth noting that the series are affected by a sharp discontinuity in the way data were collected, because of a new labour law that had come into being in 1886 (Law 3,818 of April 15). From that moment on, mutual aid societies had to be officially licensed by the government, hence data collected before 1885 are not easily comparable with those reported in following benchmark years.

However, the 1895 statistics differentiates between total and licensed societies. In order to get a rough estimate of total members for 1902 and 1912, the ratio of licensed societies as a share of total reported in 1895 is used – assuming that it remained the same in 1902 and 1912. This approach is admittedly quite straightforward, but it is the only viable one for getting a long-term view on the evolution of workers' mutualism in Italy during 1861 – 1912 (Table A2.1).

[12] In the case of 1885 the datum refers to 'admission taxes, contributions and fines paid by members'.

Number of societies / population	1862	1873	1885	1895	1902	1912
Piemonte	0.05	0.12	0.22	0.40	0.47	0.61
Liguria	0.05	0.16	0.10	0.35	0.45	0.85
Lombardia	0.02	0.06	0.14	0.25	0.27	0.34
Veneto		0.04	0.10	0.18	0.20	0.27
Emilia Romagna	0.03	0.06	0.14	0.21	0.27	0.33
Toscana	0.03	0.08	0.15	0.24	0.30	0.45
Marche	0.02	0.08	0.20	0.32	0.44	0.74
Umbria	0.03	0.07	0.15	0.26	0.39	0.49
Lazio		0.06	0.11	0.26	0.21	0.37
Abruzzi e Molise	0.00	0.01	0.09	0.13	0.13	0.22
Campania	0.00	0.01	0.09	0.16	0.13	0.21
Basilicata	0.00	0.01	0.14	0.42	0.46	0.56
Puglia	0.00	0.03	0.11	0.04	0.03	0.03
Calabria	0.00	0.01	0.06	0.11	0.09	0.21
Sicilia	0.00	0.03	0.09	0.10	0.11	0.14
Sardegna	0.01	0.02	0.04	0.09	0.14	0.26

Table A2.1 – Number of mutual aid societies as a share of population (thousands).

The large regional disparities in mutual aid networks may not be reflective of social capital alone. Indeed, they are correlated with industrialization and the spread of socialist movements, as the paper shows. The following figure confirms that – once we control for the effect of industrial growth and development on membership – the index of networks captures bonding social capital, which is not likely to have direct effects on income growth over time, although it may influence the development of bridging and linking social capital. Figure A2.2 shows the amount of members' contributions to the funding of mutual aid societies in 1862, 1873 and 1885: no regional gap can be identified.

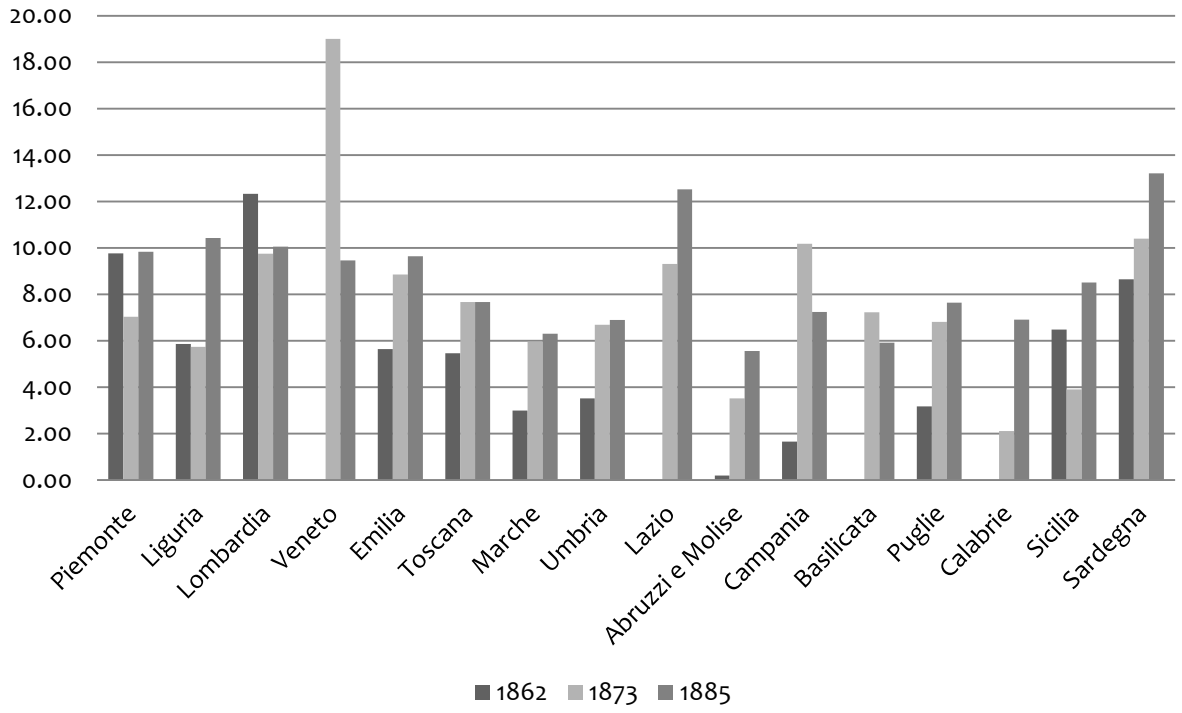

Figure A2.2 – Members' contribution to the financing of mutual aid societies, 1862, 1873 and 1885. Data are in current Lire.

Instead, another index of social engagement – linked to a different aspect of mutual aid societies – shows that regional differences were large and that they persisted over time (Figure A2.3). This is a plausible story: although the workers in the North, centre and South used to invest roughly the same amount of money to finance their societies' operations, the surrounding agents behaved differently towards this kind of mutualism. The northwest, eastern and central regions used to donate more to the workers' network than the South, a pattern that interestingly resembles the one identified in donations to charity institutions.

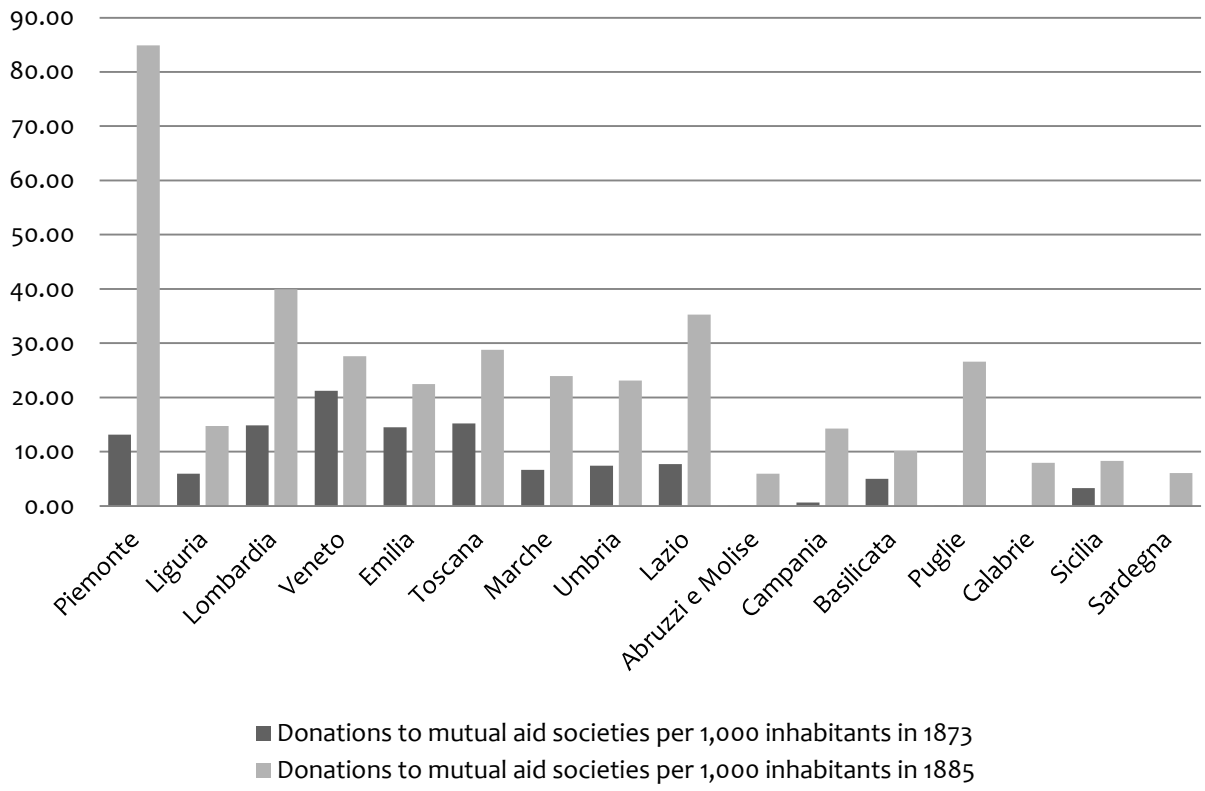

Figure A2.3 – Social participation for mutual aid societies: donations to societies per 1,000 inhabitants, 1873 and 1885.

3. Trust

The index of trust is constructed by using the inverse of the number of crime reports in each region. Data on criminality contained in judicial statistics were collected for the years 1870, 1881, 1891, 1901 and 1911 – with a particular focus on violent and major crimes against people and property in order to reduce the bias due to under-reporting[13]. After the unification, Italy's penal code remained provisory until 1890, when the new code Zanardelli was introduced. Until then, the Kingdom had implemented the code in use in the Regno di Sardegna (roughly Piemonte, Liguria and Sardegna), while Toscana refused to adopt it given its own relatively advanced code, which for example rejected the death penalty as a sanction. For this reason, the comparability of data between 1881 and 1891 is difficult. Equal (or at least similar) crimes that were coded differently were homogenized via an in-depth analysis of the sources. However, possible differences remain.

[13] The focus on crime reports instead of judged crimes allows one to avoid potential regional differences in the effectiveness and fairness of the judicial system. This choice reinforces the problem of under-reporting, which can be addressed by focusing on crimes that are generally reported – or directly known, like homicides or crimes against public authorities.

Data for 1870, 1891, 1901 and 1911 display roughly the same distribution of crimes (and hence trust) across regions, and are published in the same or very similar format. Yet, 1881 data differ strikingly from the other years – the pattern being quite in line with other benchmarks for the regions in the North and centre, but changing significantly for the South[14]. Because of the problems just mentioned, the 1881 value was estimated by means of linear extrapolation. The index of trust does not reveal any convergence across regions in the years 1871 to 1911.

4. Other data – secondary sources

Beyond social capital estimates, my research implements data drawn from different sources. Data on yearly regional population are collected from censuses (1871, 1881, 1901 and 1911) and have been kindly provided by Vasta (mimeo).

Data on human capital, proxied by a variable labelled 'education', are drawn from Felice (2012).

Data on regional GDP are derived from the national series in constant Lire developed by Fenoaltea (2005), to which the regional coefficients estimated by Felice (2009, 2011) are applied.

[14] A further explanation for a smaller number of crimes in the South might be the lack of authority's supervision. The 'briganti' had opposed the South's annexation of the Kingdom of Italy, and had harshly fought against it. However, the repression was conducted mainly by the army, and very often crimes linked to the revolt were judged by military courts. This might contribute to an explanation of why, in this and the following phase (certainly a period of transition), civil penal courts registered fewer crimes than from 1891 onwards.

Escaping from a human capital trap? Italy's regions and the move to centralized primary schooling, 1861 - 1936

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Abstract

The present paper explores the role of public policy in the development of Italy's human capital in the late 19th century and the Interwar period. It aims at understanding whether a system of decentralized primary education slowed down regional convergence in schooling. This work puts forward the hypothesis that, under such a system, the country was subject to a "human capital trap", since poor and backward areas could not afford to invest a suitable amount of resources in schooling. Additionally, it investigates whether a more centralized system, introduced in 1911, loosened the trap, fostered the accumulation of human capital and reduced the country's regional disparities. Original qualitative evidence and new data on schooling confirm the existence of such a trap, and highlight the positive role of centralization in the Interwar period. The econometric model implemented strengthens these findings: backward regions were unable to improve the quality of education, which in turn gave rise to a vicious circle in which poor human capital dragged down economic development. Centralized primary education certainly fostered the development of Italy's schooling in the Interwar period. However, human capital regional disparities across the country persisted, a result that calls for further research on the topic.

I

Human capital is a central determinant of economic performance. One line of research, dating back to the work of Lucas and Romer, suggests that a more educated labour force greatly improves a country's rate of growth.[15] However, theoretical models seldom provide insight into the way that human capital actually affects economic performance.[16] A more long-term perspective has allowed researchers to identify some of the mechanisms linking human capital and growth. For example, Becker et al. maintain that an inverse relationship between fertility and human capital is responsible for the presence of different growth equilibriums across countries.[17] This has recently become a key feature of Unified Growth Theory, the aim of which is to merge different stages of economic development into a single and comprehensive model of growth.[18] Goldin and Katz put forward the notion that education is likely to supply skills that are required in order to meet the demand generated by technological progress.[19] Other work using a historical perspective provide further insights into the way that education and human capital can promote economic growth. In spite of different (and not necessarily mutually exclusive) views on the issue, improved human capital prompted by the Enlightenment might explain why the Industrial Revolution was mainly a European phenomenon.[20] Supporting this hypothesis is that a number of northern European countries had already achieved diffused literacy and numeracy by the early nineteenth century.[21] Following this line of reasoning, the central role of skilled labour in modern economic growth calls for a better understanding of the way that education systems have shaped human capital in the past.[22] Although between the sixteenth and the eighteenth centuries much of the improvement in education and literacy was sparked by private institutions, the rise of modern states and the will to provide mass education prompted the intervention of government policy. Whether to implement a decentralized education system versus a more centralized one became a crucial choice, because of the intrinsic tension between private demand for education and

[15] See Lucas, 'On the mechanics of economic development'; Romer, 'The origins'.
[16] See Thirlwall, *Growth and development*; Todaro, *Economic development*.
[17] Becker et al., 'Human capital'.
[18] Galor, 'From stagnation to growth'.
[19] Goldin and Katz, 'The race'.
[20] See Landes, *The wealth and poverty of nations*; Mokyr, *Accounting for the Industrial Revolution*; Mokyr, *The enlightened economy*.
[21] See A'Hearn et al., 'Quantifying quantitative literacy'; Morrisson and Murtin, 'The century of education'.
[22] Hanushek and Woessmann, 'Do better schools lead to more growth?'.

externalities brought about by the accumulation of human capital.[23] Historically, different countries have reacted to a variety of economic and political factors in relation to schooling; hence it is quite difficult to identify the circumstances under which diverse education systems succeed or fail. Lindert holds that decentralized education fostered the development of human capital in Germany. 'Schools were founded locally, by local appointees, with the result that tax-based primary education flourished where the local demand was already stronger in the late nineteenth century'.[24] Germany shared this virtue with the US, according to Goldin. However, 'the[se] virtues were not always intentionally so nor were they virtuous in all locations and situations, as in the case of local control and the use of property taxes'.[25] These authors take a national and comparative perspective on the spread of education and the accumulation of basic human capital; yet, nowhere do they connect education policies in Germany and the US to regional inequalities in schooling. Such a connection is made by Go and Lindert. They point out that decentralized education 'made it easier to launch public education on a limited scale' in nineteenth-century US.[26] At the same time, regional differences in affordability, local autonomy and political voice resulted in the uneven rise of schooling across US states. Along the same lines, recent research looking at the reconstruction of routes to mass schooling in different regions of the world suggests that, under certain conditions, local autonomy in the provision of basic education is responsible for the limited accumulation of human capital. New case studies based on colonial Korea and the BRICs in the early twentieth century suggest that decentralized schooling can stifle educational outcomes – especially where restricted ruling elites dominate the local political scene in the context of remarkable regional disparities, institutional differences and socioeconomic inequalities.[27] Even the World Bank, an organization that in the past has strongly promoted the adoption of decentralized education,[28] seems to be turning to a more cautionary stance concerning the benefits of such policies.[29] Although new evidence on the benefits of decentralization is mixed, to say the least, a serious assessment of the potential benefits of more centralized systems is still lacking. As the economic history of education drawn by Mitch shows,

[23] Mitch, 'The economic history of education'.
[24] Lindert, Was Churchill right?', p. 332.
[25] Goldin, 'The human-capital century', p. 265.
[26] Go and Lindert, 'The uneven rise'.
[27] See Go and Park, 'The elite-biased growth'; Chaudary et al., 'Big BRICs'.
[28] See Fiske, 'Decentralization'.
[29] See Mansuri and Rao, 'Localizing development'.

the debate rages on between those who tout the benefits of decentralized education and those who limn its limits.

Italy constitutes a unique case study on education systems. The country was – and still is – characterized by large disparities in income and, even more, in basic human capital. A long-term perspective can reveal how decentralized and centralized education affected schooling across regions. In fact, a decentralized system was established in 1859, and endured – with minor changes – until 1911, when an important reform largely centralized the funding of education. Furthermore, studying Italy's education policy may shed light on several hypotheses on the long-term persistence of an impressive regional divide in human capital, [30] which certainly slowed down the comparative performance of the country as a whole (Figure 1). Notably, the convergence process remained incomplete in the Interwar period, despite the fact that literacy measures are subject to an upper-bound equal to one.

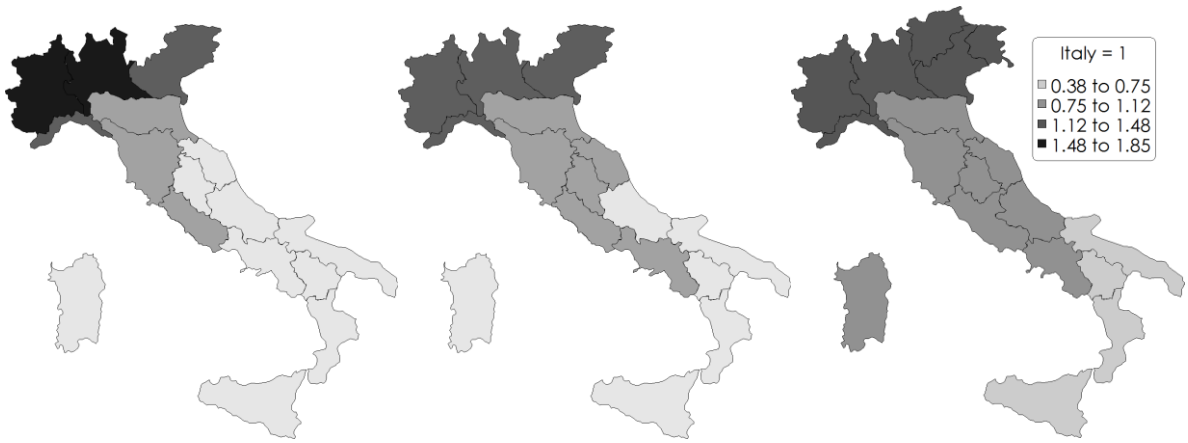

Figure 1: Adult Literacy Rates (15+) across different regions (Italy = 1) in 1871, 1911 and 1931.

Source: Vasta (mimeo).

Notes: the country's maps throughout the paper have been drawn by relying on ISTAT, *Variazioni amministrative*, which does not include Istria after 1921.

The persistence over time of regional disparities in education is the key to a thorough understanding of Italy's development. Historiography has accentuated the role of public policy, and the will to maintain a decentralized education system until the early twentieth century: Zamagni blames the government for its late decision to intervene, taken only after 'the failure of

[30] See Conte, Della Torre and Vasta, 'The Human Development Index in historical perspective'; Felice, 'I divari regionali'; A'Hearn, Auria and Vecchi, 'Istruzione'; Felice and Vasta, 'Passive modernization?'.

the alternative' had become clear.[31] Vasta pushes this argument forward. In his view, a change towards centralization was urgent: decentralized primary schooling acted not only as a halt on modernisation, but also as a possible constraint for long-term regional convergence given the prominent role of human capital in the Second Industrial Revolution.[32] A'Hearn, Auria and Vecchi have recently reflected upon Italy's poor performance in human capital accumulation, but the role of the school system remains largely unexplored.[33] A new analysis on the different dimensions of the Human Development Index, conducted by Felice and Vasta, shows that 'convergence in education was significant in the Liberal Age mostly as a consequence of the huge differentials in 1871', but that 'much more could be done'.[34] In fact, between 1871 and 1911 the regions that converged more slowly were Calabria and Basilicata, those characterized by the lowest literacy rates after Italy had become a unified kingdom.[35] This view seems to be supported by Battilani, who finds evidence of large disparities in tax revenues and public expenditures by municipalities across Italian regions after unification.[36] However, these hypotheses have not yet been tested, and the role of the country's education system in the accumulation of human capital has been under-researched.

This paper bridges this gap by carrying out a new exploration of the role of Italy's primary school system (1861 – 1936). It seeks to answer the following research questions: did decentralized primary schooling inhibit regional convergence in education? And if so, did centralization improve the pace of convergence and the country's performance? The results are tied to a new interpretation of Italy's long-term regional disparities and of their potential determinants: human capital is found to be a central factor of growth across Italy's regions, especially as far as the period from the late nineteenth century to the Second World War is concerned.[37] Therefore, understanding the determinants of human capital development is of twofold importance: on the one hand, this research sheds light on Italy's patterns and determinants of human capital accumulation, in line with the international research briefly outlined; on the other hand, it provides

[31] Zamagni, *Dalla periferia al centro*.
[32] Vasta, *Innovazione tecnologica*.
[33] A'Hearn, Auria and Vecchi, 'Istruzione'.
[34] Felice and Vasta, 'Passive modernization?'
[35] Felice, 'Perche'' (p. 123).
[36] Battilani, 'Local administration'.
[37] Felice, 'Regional convergence in Italy'.

new insights into the potential causes of the country's long-term regional income disparities, a topic that is central to the historiography of Italy's long-term economic development.

Two different hypotheses are tested. The first is that decentralized primary education locked Italy's regions in a human capital trap: if municipalities were obliged to bear the burden of expenditure, poor and rural areas would not be likely to supply a desirable amount of schooling. This in turn would depress literacy and subsequent economic growth, and hence start a vicious cycle. Although the regions of Italy that lacked basic human capital were able to grow throughout the period analysed, their long-term economic and human development was retarded because of limits on basic education, and they lost ground with respect to rest of the country. The second hypothesis is that the Daneo-Credaro Reform, passed in June 1911, weakened the human capital trap and fostered the supply of education in the years following the Great War.

The results illustrate the existence of a significant relationship between the municipalities' spending capacity and the level of schooling before 1911; the econometric evidence suggest that centralization increased the supply of schooling and mitigated the relationship between school supply and the municipalities' available resources. However, the evidence on the pace of convergence after the Daneo-Credaro Reform is mixed, and needs to be further explored. This study places Italy among the countries where decentralized education did not promote human capital accumulation, mainly as a result of pre-existent large regional disparities in literacy, economic development and the extent of economic inequalities, probably greater than those characterizing nineteenth-century Germany and United States. Furthermore, Italy's case clearly shows that, if a focus on regional development is adopted, the dangers of decentralized systems should not be neglected. The paper is organized as follows: Section II discusses Italy's system of primary schooling (1859-1911) and surveys some qualitative evidence on the presence of a human capital trap; Section III presents the methodology adopted in order to test the two hypotheses; Section IV describes the range of primary sources explored; Section V reports both descriptive and econometric evidence; and finally, Section VI provides interpretations and concludes.

Ⅱ

Italy's national primary school system was established by the Casati Law during the process of unification (1859) and was later extended to the other regions that became part of the Kingdom.

Under this system, education was to be offered free of charge, proportional to the municipalities' spending capacity and according to their inhabitants' need.[38] First-grade primary school (lasting two years) was mandatory for boys and girls. Although parents were formally obliged to comply with the rules, no sanctions were established by the law until 1877. As a result, the norms regulating compulsory education remained largely ineffective. Only municipalities exceeding 4,000 inhabitants, or where secondary education had already been established, were required to set up second-grade schools, resulting in two additional years of primary schooling.[39]

Soon after the system was established, the Ministry of Education began to collect data and reports on the state of primary schooling across the country's provinces.[40] The first inquiry, published in 1865, outlined the dramatic state of Italy's education. Much attention was paid to the role of teachers and pedagogy. The inquiry was coupled with a statistical publication containing a great deal of data on the number and quality of teachers, schools, enrolments and actual attendance, public expenditure and salaries. This early account identified some of the major problems which would be addressed in the following decades. The most pressing issue was the presence of remarkable regional disparities in enrolments: only the northwestern provinces of Italy had Gross Enrolment Ratios (GER)[41] substantially larger than 50 percent in 1863 (Figure 2).[42]

[38] This liberal approach was a result of the limited state budget, the predominant role of liberal parties and the widespread perception that private education would play a significant role in educating Italy's citizens.
[39] Coccìa and Della Torre, 'La ricostruzione'.
[40] A brief discussion of these sources can be found in Section IV.
[41] GER is defined as the total number of pupils enrolled as a share of pupils aged six to ten (it does not account for actual attendance).
[42] The picture does not change when actual attendance (normally monitored in May) is taken into account).

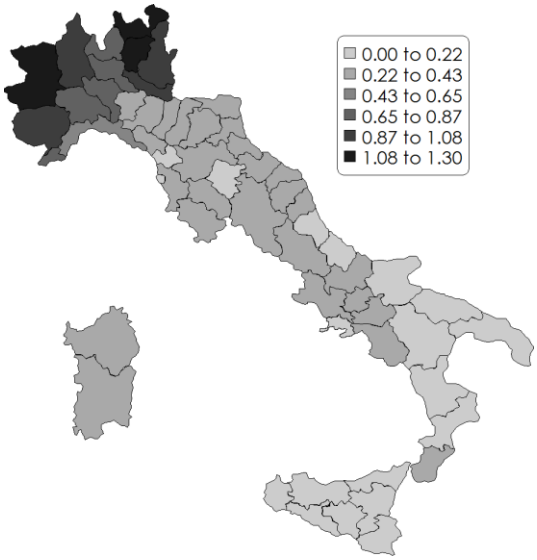

Figure 2: Children enrolled in state primary schools as a share of those aged 6 – 10, 1862 – 63.

Source: Statistica del Regno d'Italia, *Istruzione pubblica e privata* and *Censimento generale 31 dicembre 1861*.

Notes: data on children aged 6 – 10 refer to 1861. The datum for Lazio and Veneto (centre and northeast of Italy) is not reported in 1870 as these regions became part of the Kingdom of Italy in 1866 and 1870 respectively.

The inquiry blamed poverty and low living standards for the disappointing levels of attendance. Child labour was endemic to the countryside, especially during the summer. In some regions, children had to work for most of the year.[43] City councils had difficulty promoting the diffusion of schooling for two reasons. First, their balance sheets were constrained: investing in new infrastructures and enforcing compulsory education was costly, and second, schooling was not perceived as a valuable investment. This was especially the case where schools had barely existed before the unification of the country, and this was particularly so where the clergy saw state education as a factor of secularization. Consequently, a party promoting schooling could easily lose votes in future elections.

Poor-quality teaching was another discouraging feature of the system. However, as many of the inspectors admitted, teachers could not really be blamed for this. The salary they earned barely sufficed to survive: some of them had to give private lessons in order to have a decent standard of living. Furthermore, teaching methods were often obsolete. These were evidenced by the

[43] In regions like Tuscany the grain-harvesting during summer months was augmented by grape-harvesting, olive-harvesting and chestnuts collection during the whole of autumn. This basically left only a few months for schooling.

inquiry, which highlighted the fact that individual and mutual teaching[44] were still very much in fashion during the second half of the nineteenth century, limiting the scope for improvement during classes.

The report concluded with some recommendations on how to improve the school system. Firstly, it strongly advised the government to strengthen sanctions for lack of attendance. Secondly, it put forward the idea of clustering different municipalities into *consortia*, partnerships that could be exploited in order to share the burden of school building – a point that would be taken up by policy-makers only in the early twentieth century. Thirdly, the inquiry pointed out the need to provide economic support to the most disadvantaged municipalities, so that they would be able to improve their school infrastructures. Fourthly, the working conditions of teachers should be greatly improved; otherwise the job insecurity and extremely low wages would continue to depress school enrolments because of poor teaching. Finally, the need to boost the opportunities for teacher training in order to employ more highly qualified teachers was stressed. The inquiry also predicted that private education would become more important over time and it would raise the country's educational achievements. In reality, enrolments in private schools only represented roughly 13.6 per cent of the total; this figure would soon decline, with private education ending up playing only a marginal role in Italy's overall system.[45]

A further inquiry into primary education was conducted in the years 1868–1872 and, following this, was discussed in depth by the supervisor of the report, Gerolamo Buonazia.[46] Buonazia noted those features that were widely known to depress schooling and the accumulation of human capital, but he also brought up a previously neglected angle, that is, the poor quality of school buildings. Schools across the country were often overcrowded, dirty and insalubrious. They lacked basic furniture and didactic material. As a consequence, low attendance was still a plague. Most pupils would attend school just as long as they were too young to work – from approximately the age of seven to that of nine. Moreover, they often reverted to a state of illiteracy after they had

[44] The individual method consisted of face-to-face interaction between the teacher and each student within the class. Mutual teaching meant the teacher instructed a group of students whom, in turn, would be able to teach the rest of the class.

[45] In absolute terms, the number of pupils in private schools remained stable over time and, in some regions, it actually grew slightly.

[46] Buonazia was an Italian pedagogue, who took charge of state inquiries on schooling under the Ministry of Public Education during the 1860s and 1870s.

left compulsory primary education. This was due to the fact that their literacy skills were never sustained beyond the time spent in class – an interesting case of human capital depreciation.

The inquiry also suggested a link between the poor performance of teachers and low wages. The salary of non-qualified[47] rural teachers was often found to be below the minimum established by the Casati Law: 500 Lire for males and 333 for females.[48] Although teaching was a skilled job – at least on paper – preliminary estimates of the average salary of teachers in Italy (492 Lire) do not compare well with estimates of wages from the construction sector around 1871. The salary of teachers fares far better when a comparison is made with wages from textiles (Table 1).

Index	Textile	Commerce and Service	Construction	Primary Sch. Teachers
Average annual wage (1871) in different sectors	274	414	453	492

Table 1: Average annual salary of teachers in Italy (1869 – 70) compared to wages in other sectors (1871).
Source: MPI, *Documenti*. Figures on wages in other sectors are kindly provided by Felice (mimeo)
Notes: the average salary in each province is obtained by dividing the wage bill by the number of teachers reported (The datum for Italy is a weighted average based on Italy's 69 provinces, in current Lire). The province of Rome (Lazio) was not yet part of the Kingdom of Italy in 1869 – 70, and therefore it is excluded.

Provincial figures indicate that teachers' average salary was higher in the South than in the North. Although the municipalities of the latter hired more female teachers – who by law could be paid less than male teachers – the average salary does not seem to be correlated with the teachers' gender ratio. This suggests that gender bias did not drive regional differences in wages. Instead, both enrolments and the number of teachers per children are found to be negatively correlated with the average salary (Figure 3). This casts doubt on the use of teachers' wages as an index for the quality of schooling. Furthermore, this result suggests the existence of patronage-network mechanisms that are often discussed in the reports on primary schooling: the municipalities could

[47] Non-qualified teachers were defined as those who had not attended normal schools and had not acquired a formal degree.
[48] The minimum salary was established by a table attached to the text of the Casati Law. It differed across municipalities, according to whether a teacher worked in a city or in the countryside. Each of these two main categories was then subdivided into three income classes, according to the prosperity of the municipality that hired the teacher. The table can be found in Vigo, 'Istruzione e sviluppo', p. 52. The lowest class for the minimum wage was 500 lire for males, reduced by one-third for females.

discretionarily hire and fire teachers; hence, they often paid a high salary to acquaintances, even though these were not sufficiently qualified. Finally, the actual standard of living of the majority of teachers – who worked in small municipalities and in the countryside – was actually worse than what aggregate figures show, and consistent with local reports on the state of Italy's schools.[49]

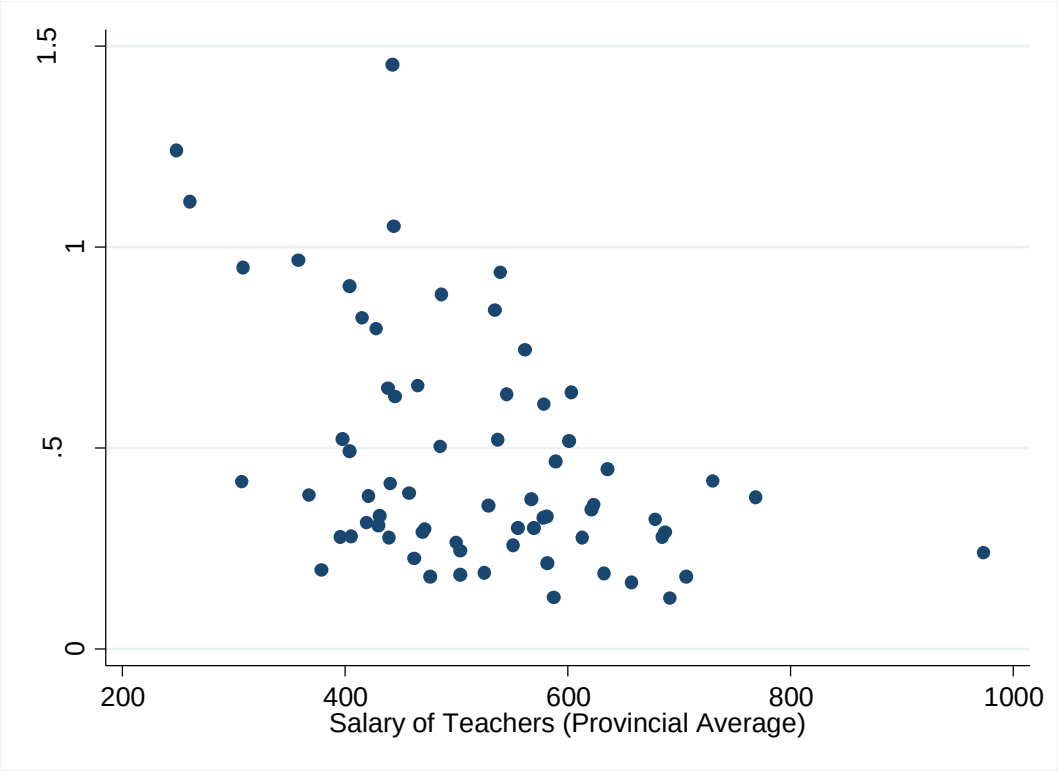

Figure 3: The salary of teachers (current Lire) and the Gross Enrolment Ratio, c. 1870 (provincial data).
Source: *Documenti*, 1870.

Although a good deal of attention was paid to the role of economic factors in explaining poor enrolment ratios and low attendance, the government continued to focus on the enforcement of formal norms – not least for political reasons and the pressure of the right-wing and Catholic parties against a more robust intervention. The latter largely opposed the reform because of the threat to local autonomy and the influence that the Church could exert thanks to private schools. The Right (Liberals, Nationalists, Conservatives) also opposed any reform of decentralized primary education. While the importance of local autonomy was linked to ideology (and to the idea of freedom) the disastrous condition of Italy's state budget also played a major role.

[49] See Vigo, 'Istruzione e sviluppo', prospetto 23, p. 51.

In 1877, the Casati Law was amended by the Coppino Law. The latter was passed in order to enforce compulsory attendance in the rural and most disadvantaged areas of the country, while the years of compulsory schooling were raised to three. A third inquiry, again supervised by Buonazia, followed in 1878. The story was still the same. Most of the schools were disastrous, in no small measure because of the grimy and decaying venues in which they were located. They were poorly attended and teaching was rarely expert. Once again, the report suggested that there was a need to find a way of pushing the municipalities to spend more on education and to enforce the law on compulsory attendance. For the first time an official inquiry adopted a more robust stance towards the possibility that the state could play a more significant role in the provision of basic education, possibly as a result of the different political environment after the Left had come to power in 1876. Buonazia pointed out that the government had always generously funded secondary schooling.[50] Therefore, he suggested, a share of these resources could be redirected to fund primary schooling so that issues brought about by economic backwardness could be addressed more effectively.

The Torraca inquiry (1897) provided some very picturesque reports on the state of Italy's schools, with a particular focus on schoolhouses. The inspector from Campobasso claimed that 60.65 per-cent of the schools in the district were in a sub-optimal state, while 69 percent of the furniture and didactic material was deemed to be barely sufficient or even insufficient. The report on Oristano portrayed schools as 'narrow and unhygienic hovels with no roof and dirt-patched and muddy floors, characterised by unhinged, broken-glassed windows'. Reports from Sanremo, Melfi and Avellino described schools with no toilets. The inspector from Susa found that some schools had been set up in stables, where 'the noise of animals – oxen, donkeys, sheep, chickens etc. – was a continuous source of distraction'. According to this account, these conditions would be difficult to improve: local politicians would simply claim that the children were not affected by this kind of environment – *just because* they had always been taught in that way. The inspector from Vasto described 'miserable and dirty rooms that lacked air and light, and which were dripping moisture'. The report by an inspector from Gaeta sheds light on the reasons why schools were often called 'killer schools': 'many [children] were covered with vivid and purulent sores, the stench of which

[50] Secondary education was indeed centralized and funded by the state – which was connected to the elitist view of the Right (1861 – 1876) that the state had to support those who would rule the country in the future, while the education of the masses was a minor concern for the central government. Furthermore, the Right sought to invest in national railways and focused on a tight control of the state budget, which further reduced the amount of resources that could be allotted to primary schooling.

infected the air: I made sure the children would leave me alone'. Administrative inefficiencies were also noted. Sometimes the schools were set up in leased buildings. The contracts for these were not meant to save money. Instead, the local elites typically forced the city councils to pay a rent higher than the market price in order to establish a school in the buildings of friends. In this way, the elites could reinforce and strengthen their patronage network.[51]

Torraca called for a new law to build more schools, so that the use of leasing contracts would be reduced. However, the bureaucracy concerning the requests for mortgages and subsidies also needed to be simplified, since applications normally took two or more years to be revised and approved.

Thus it was that on the eve of the twentieth century, state intervention came to be seen as the only viable solution to the problem of Italy's primary education. Enrolments in private schools had dropped to 7.3 percent of the total, and the Torraca inquiry had just exposed the poverty of pedagogy in private institutions.[52] Moreover, a demand-side shift was very unlikely to improve educational attainments or to reduce regional disparities in schooling. This last can be seen, for example, in the fact that the first wave of income growth affected mainly the northwest regions of the country. This was because economic development had lowered the opportunity cost of education given the increased levels of industrialization; this, in turn, brought about an increased demand for skilled labour, following the shift towards a less agricultural economy. Although economic growth at the beginning of the twentieth century was largely due to traditional sectors such as textiles, which admittedly did not require skilled labour, new industries (chemicals, steel and electro-mechanics) and ancillary services such as transport and banking pushed for an increased human capital.[53] As the northwest forged ahead, the south of the country lagged behind, and these regional disparities were very likely to persist throughout the twentieth century given the absence of any substantial government policies in support of primary education.

It was in this context that the state slowly started to step in, by approving the Nasi and the Orlando Laws (1903 and 1904 respectively) and by passing a Special Law for the south of Italy (1906). In a nutshell, these interventions were aimed at improving the working conditions of

[51] See Briggs, "An Italian passage", p. 45.
[52] According to the report, this happened mainly because limited state control on classes taught by the clergy, with its focus on catechism.
[53] See Becker et al., 'Catch me' for a similar analysis based on 19th century Prussia.

teachers and promoting the construction of new schools in the most backward regions, while the school age was raised to twelve years. A further decisive step was taken when the Corradini inquiry was published in 1910. This represented another effort to understand the causes of Italy's sluggish performance in primary education. Although the report largely confirmed what the other studies had already illustrated, this particular study played a crucial political role in advancing and accelerating the process that led to centralized primary education – so much so that the new bill, which would be approved soon after the inquiry was published, was often called the Corradini Law within political circles.[54]

The Daneo-Credaro[55] Bill was passed on June 4, 1911. This reform, the result of a delicately drawn compromise between competing ideological and political views on education and the role of the state, significantly modified the educational system. The parliamentary debates of 1910 reveal that not even Daneo and Credaro were in total agreement on some specific points concerning the new law. A look at the reform reveals the mixed character of Italy's new primary schooling system. The most controversial feature of the reform was probably the revised role of the provincial school board: the *Consiglio Scolastico Provinciale* (CSP) functioned as an intermediate body between the municipality and the state. The *Consiglio* was redesigned to manage the resources allocated to primary education and to hire teachers. It allowed a great deal of administrative decentralization that largely limited the power of the city councils. However, the system was centralized financially far more than it had ever been: the state was fully committed to paying the teachers' salary. By contrast, the municipalities still largely managed the building of schools, and they could apply for interest-free state loans in order to do this. According to the bill, the municipalities that were included in the CSP system had to transfer an amount of money equal to their previous year's budget to the Treasury (art. 17). The government would then redistribute these funds to the provinces (art. 19), which would in turn finance education (art. 20). It is worth noting that provincial capitals and other major administrative centres were excluded from the CSP system. However, every city could formally apply to be included in (or excluded from) its relative CSP within three years of the approval of the reform.

The last educational reform prior to WWII was conceived by Giovanni Gentile and approved when Fascism was on the rise (1923). It adopted a more elitist view of education. However, the changes

[54] Cives, *La scuola italiana*.
[55] Edoardo Daneo and Luigi Credaro were ministers of education in 1909-1910 and 1910-1914 respectively.

concerned mainly secondary education, while primary schooling was left largely intact, especially as far as the funding of schools was concerned. In fact, state aid was improved and the system further centralized. Therefore, the effect of the Daneo-Credaro Reform endured until WWII broke out.

The following section provides a framework aimed to answer the research questions outlined in Section I: did the Casati Law really slow regional convergence in schooling? Did the Daneo-Credaro Reform change this pattern in the Interwar period?

Ⅲ

Since the aim of this paper is to understand whether the decentralization of primary schooling hampered the development of education across Italy's regions (and whether the Daneo-Credaro Reform changed this mechanism in 1911), it does not address output measures of human capital such as literacy rates. Instead, the focus is on the way schooling was supplied. First, the reforms of the education system likely had more immediate effects on the diffusion of schools, teachers and enrolments. Second, focusing on schooling is likely to scale down problems of endogeneity, which are more likely to rise by regressing output measures on the municipalities' available resources.[56] Finally, the supply of schooling should not be directly affected by the migration of human capital abroad, since investments in education normally respond to local demand-side conditions, which can be captured by other control variables. Therefore, the role of decentralized and centralized primary education is assessed by examining: (1) the number of schools[57] per 1,000 children subject to compulsory schooling;[58] (2) Gross Enrolment Ratios; (3) the number of teachers

[56] Spending capacity (tax revenues) was recorded yearly and known by the municipalities. Therefore, it was likely to affect schooling rapidly, because teachers could be hired quickly and schools could be easily opened by using and renting existing buildings. By contrast, the potential effect that primary schooling had on spending capacity (if any) would take years to unfold, and depended on the influence of – and interaction with – a variety of demand-side factors.

[57] In Italy's statistics, the term 'school' is often used to describe classrooms – i.e. small buildings where children were taught by a single teacher, who would normally take care of different classes within the same room. As a result, the number of schools basically equals that of teachers in the statistics published before the Great War. Later statistics keep the same correspondence with the number of teachers. However, they also consider as separate schools those groups of pupils (*sezioni*) that were taught by a same teacher in different shifts but within the same classroom. Therefore, the number of schools in the statistics published in the Interwar period is always larger than that of teachers.

[58] The children subject to compulsory primary education are estimated by considering the age class 'six to ten' for Italy's Liberal age (1861-1921) in order to allow for a diachronic analysis – as the age for compulsory schooling grew from two years to four or six (depending on the curriculum) during the period. Instead, for

employed per 1,000 children and (4) the share of municipal revenues allocated to education (by percentage). These indices provide a comprehensive picture of the way in which the government influenced the development of schooling.[59] Taking more than one index into account is crucial, because the Daneo-Credaro Reform had different effects on different dimensions of schooling. Enrolments are naturally subject to an upper bound. However, the years of compulsory schooling were continuously raised by the law and, as a consequence, the evidence on convergence should not be biased by the nature of the index. Moreover, the figures concerning the index of dispersion presented in the next section show that a great deal of convergence in enrolments took place between 1920 and 1930, when the scope for convergence was more limited, according to our expectations on the bounded nature of the variable. The northern regions were already characterized by values around 1.00 at the end of the nineteenth century. Therefore, steady convergence is expected in the following years, while it should slow down in the Interwar period as the southern regions came close to 100 percent enrolments. However, this was not the case: between 1921 and 1928, the dispersion around the mean drops by an extent that had no parallel in the nineteenth century, an effect certainly due to the Daneo-Credaro Reform.

The econometric model is inspired by Clay, Lingwall and Stephens[60] (cf. Gujarati and Porter 2003). Firstly, it tests whether the municipalities' spending capacity ($\boldsymbol{econ}$) explains the variation in the supply of schooling ($\boldsymbol{sch}$) across Italy's regions. The sign of this coefficient is expected to be positive.

A first regression is performed for the whole period (1863 – 1936), including a vector $\boldsymbol{X}$ of control variables, macro-regional dummies[61] and a time-trend common to all the regions (Equation 1):

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the Fascist period the number of pupils subject to compulsory education is directly drawn from the inquiries and statistics, and refers to the age class '6-14', introduced by the Gentile reform in 1923.
The choice of using pupils aged six to ten as a denominator, is justified by the fact that different Italian regions might have been characterized by a different demographic structure, like a different share of young people in total – which seems to be suggested by data analysis.

[59] Although private education played some role in the early stage of Italy's development, its share declined quickly over time. Additionally, private schooling was marginally affected by the major reforms that led to centralization – hence it will not be taken into account.

[60] See Clay et al., 'Do schooling laws matter?'

[61] Macro-regional dummies are used in order to take into account whether a region was located in the northwest, northeast, and centre, or in the South and Islands. This specification is preferred to fixed effects because of the limited number of observations available given the large number of controls included in the model. Furthermore, the literature on Italy's economic history suggests that regions belonging to these areas present common traits that are more persistent and distinctive than regional effects. Finally, it is worth noting that using this specification significantly improves the estimates of the effect of demand-side factors,

(1) $sch_{it} = \beta_0 + \beta_1 econ_{it} + \beta_2 X_{it} + \beta_3 NEC + \beta_4 SI + \beta_5 time + \varepsilon_{it}$

Secondly, the same kind of regression is performed for the pre-1911 and post-1911 periods separately. This allows for the use of the same approach, i.e. including macro-regional time-invariant effects and a trend. At the same time, it is possible to test whether the relationship between schooling and the municipalities' spending capacity differed before and after the Daneo-Credaro Reform, and if there is any change due to the direct effects of centralization. The hypothesis is that the coefficient of spending capacity will be positive and significant in pre-1911 years, and will be closer to zero and/or non-significant in the Interwar period. By the same token, a change in the trend and/or in the macro-regional dummies tell us whether the reform had any direct effect on schooling and expenditure on education.

IV

The data and evidence used in this work are drawn from largely unexplored primary sources. The most important of these are the state inquiries on primary education, published regularly between 1865 and 1923. These report a large amount of data, which in turn is complemented by other statistics on education published on a regular basis by the Italian government from 1864 to 1941.[62] Both the qualitative and quantitative evidence on Italy's primary schooling is drawn entirely from these publications. The reports were drafted by local inspectors, but the Ministry coordinated their publication in the form of national inquiries and statistics that were often discussed by an expert on the topic. Ideology and political ideas certainly influenced the information provided, but it is hard to claim that any specific agenda actually existed. In fact, the evidence provided by the inquiries was very often against the political will of the party in power. For example, the government led by the Right (1861 – 1876) sought to promote local autonomy, private schools and a lack of state intervention. Although the final reports attached to the inquiries published in 1865 and 1873 did not explicitly contradict this agenda, they highlighted several aspects of the system that required a change in education policy.

Data might also be subject to errors and omissions: the qualitative and quantitative information provided is the result of research plans that sought to collect data on every single municipality of

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while the conclusions about the role of fiscal capacity and institutional features remain the same even if fixed effects are used.

[62] A more detailed and comprehensive list of primary sources can be found in the references, under 'official publications'.

the country, because sampling methods did not exist.[63] However, a long-term analysis of these sources can reveal persisting patterns that are unlikely to be influenced by ideology and political change or by measurement errors. A potential, intrinsic bias in the sources would reduce the picture of regional disparities in schooling: the reports written by inspectors from the north of Italy are normally more critical than those provided by employees in the South, because the context is likely to influence subjective evaluations to a very large extent.

The municipalities' spending capacity is reconstructed by looking at government publications concerning their budget, the figures of which are conveniently published by provinces and regions. Data are reported in current Lire. These were converted into 1938 constant prices by drawing on the deflator published by Fratianni and Spinelli.[64] Most of the information is directly available, but data from the early years (1861-1871) for Veneto and Lazio had to be estimated, because these regions became part of the Kingdom of Italy only in 1866 and 1870, respectively.[65] The proxy for the municipalities' spending capacity is obtained by summing up different kinds of ordinary revenues,[66] net of capital flows and other extraordinary revenues.[67] The data concerning expenditure on education are also collected from this source.

The econometric model includes different control variables. Two of them concern the opportunity cost of education. First, the share of the agricultural labour force on the total active population is used to capture an effect that was repeatedly described by the inspectors of education: farmers were often not happy about letting their children attend school, because they were needed as additional and cost-free labour force at home. Thus, attending schools was costly, a cost that increased because of the very poor quality of education. Moreover, in a largely agricultural society people did not expect to gain much from school, since the demand for skilled labour was likely to be limited. Data on the regional labour force in agriculture have been obtained from different

[63] See De Fort, 'La scuola elementare', pp. 78 – 79.
[64] See Fratianni and Spinelli, 'Storia monetaria'.
[65] It has been assumed that the spending capacity of Veneto compared with its peer regions was constant between 1863 and 1870. First, the value of Veneto in 1870 was divided by the simple, un-weighted mean of its peers' spending capacity: the regions chosen were those of the Centre of Italy, Lazio excluded. This has been used to estimate the value of Veneto's spending capacity in 1863. The same procedure has been used to reconstruct the value of Lazio's spending capacity in 1863 and 1870, starting from the ratio between Lazio and the regions of the Centre (Veneto included) in 1877.
[66] Ordinary revenues included property rents, taxes from various sources, surtaxes on land and consumption and other minor items.
[67] Extraordinary revenues included capital flows, rights for the use of municipal roads, state subsidies for the construction of basic infrastructures, revenues from pecuniary sanctions and donations.

secondary sources,[68] but data for the year 1871 had to be collected from primary sources and were elaborated following Zamagni and Felice.[69] Another control for the opportunity cost of education is the incidence of child labour, measured by the share of workers on total children, which has been recently published by Cinnirella, Toniolo and Vecchi.[70]

Another important control variable has been included in order to deal with a potential problem underlying the data on the municipalities' revenues. The city councils were allowed to establish surtaxes in order to fund investments in public goods that, according to the law, had to be provided at the municipal level. The problem arises because local tax rates were highly discretionary. Because of this, A'Hearn, Auria and Vecchi have put forward the view that the amount of investment in schooling was not, in fact, driven by the municipalities' spending capacity. According to their hypothesis, the different municipalities had different preferences concerning the optimal level of investment in human capital, and this investment, in turn, was dependent on the extent to which land and social inequality led to political fractionalization.[71] For example, the south of the country did not invest as much as it could have in education, the result of the ruling elites' reluctance to provide public goods to the majority of its citizens. By contrast, the ruling class of the North – characterized by fewer social inequalities and by a higher level of social capital[72] – converged on a larger share of resources being invested in schooling. Such a model implies that the differences observed in per capita municipal revenues across Italian regions were due to the amount of resources that municipalities *decided* to spend on education, and not the other way around.

According to the authors, this pattern is described by the ratio between municipal surtaxes on land and property and municipal consumption duties. The larger share of income due to land surtaxes in the northern regions suggests that the governing elites (mostly affected by land and property taxes) were more willing to pay in order to provide mass education and widely accessible public goods. Although this proxy is conceptually sound, it must be interpreted with caution: Italy's cadastre (*catasto*) was not harmonized across different regions until the mid-twentieth century.

[68] See Felice, 'Estimating regional GDP'; idem, 'Regional value added'; SVIMEZ, '150 anni'.
[69] See Felice, 'Regional value added'; Zamagni, 'A century of change'.
[70] See Cinnirella, Toniolo and Vecchi, 'Lavoro minorile'
[71] A'Hearn, Auria and Vecchi, 'Istruzione', p. 166. See also Engerman and Sokoloff, 'Factor endowments'; Galor et al., 'Inequality in landownership'.
[72] See Guiso and Pinotti, 'Democratization' on how social capital was linked to the development of Italy's local institutions.

Thus, comparing revenues from surtaxes on land (inherently different across regions) with revenues due to local consumption duties (a system that was more homogeneous across regions) does not necessarily capture what A'Hearn, Auria and Vecchi are trying to observe, and may lead to a bias. Although this effect could be captured in a more effective way by comparing municipal revenues from surtaxes with state tax revenues, data on the matter could not be retrieved for the Interwar period. Therefore, the index suggested by A'Hearn, Auria and Vecchi must be used as the only viable proxy for local tax policy and, indirectly, for proxying local preferences towards education.

Lagged Adult Literacy Rates are used to proxy parents' and society's levels of human capital;[73] life expectancy at birth is used to measure well-being, which may be important for school attendance;[74] charitable expenditure as a share of municipal budget is used as a measure of social capital, and was calculated from the municipalities' balance sheets; a proxy for population density was calculated from the censuses in order to control for agglomeration; finally, children enrolled in private schools (as a share of children aged 6 to 10) are used to control for the relationship between private and public schooling.

Overall, the analysis is developed by concentrating on the benchmark years for which data on schooling were fully available, i.e. 1863, 1870, 1877, 1884, 1895, 1907, 1912, 1921, 1928, 1930 and 1935. Financial figures and data on control variables were normally available in neighbouring years – although several of these had to be re-aligned to the figures on schooling by means of linear interpolation. The complete panel is made up of 16 to 18 regions (depending on the period, as the number grew in the Interwar years) and 11 benchmark years – six before the Daneo-Credaro Reform was passed and five years afterwards.

V

This section presents descriptive evidence for the existence of a human capital trap across Italy's regions and on the effects of the Daneo-Credaro Reform after 1911. The analysis is based on figures regarding the municipalities' balance sheets and primary schooling. Figure 4 plots an index of the municipalities' total available resources in 1877 and 1928: data from the municipalities are aggregated by region and divided by the respective population. The municipalities' spending

[73] See A'Hearn, Auria and Vecchi, 'Istruzione'.
[74] See Atella, Francisi, Vecchi, 'Salute'.

capacity differed considerably across regions, with no sign of convergence over the long run. In fact, an index of dispersion developed following Williamson and Felice and Vasta takes value 0.369 in 1895, 0.312 in 1912 and 0.379 in 1928.[75] These findings suggest that poor areas were scarcely able to afford to invest in education under the system of decentralized primary schooling, and that this situation did not improve in the late nineteenth and early twentieth century.

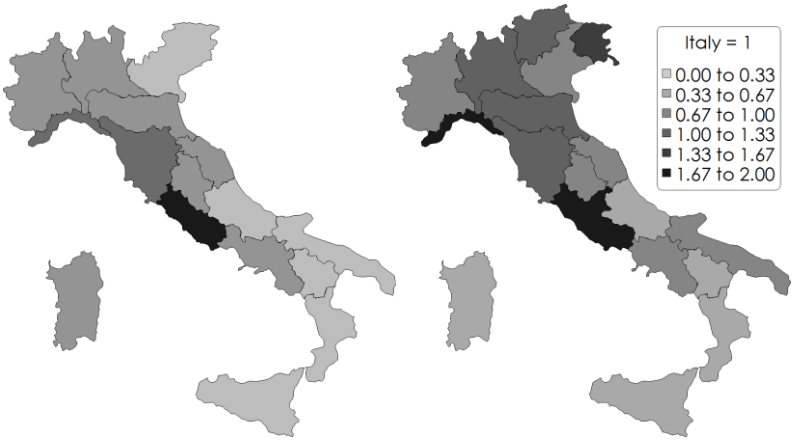

Figure 4: Municipalities' available resources (aggregated by region) divided by regional population in 1877 and 1928 (Italy = 1).
Source: MAIC and Ministero delle Finanze, *Bilanci comunali*.

Figure 5 illustrates the regional distribution of the municipalities' expenditure on education divided by the number of children subject to compulsory schooling. The index of dispersion suggests that the Daneo-Credaro Reform had an impact on per capita expenditure after the Great War. Between 1895 and 1912, the index grows from 0.448 to 0.656 (thus highlighting divergence) while from 1912 to 1928 it drops to 0.313. This suggests that centralization truly fostered convergence in the number of resources allocated to the development of education across Italy's regions.

[75] See Williamson, 'Regional inequalities' and Felice and Vasta, 'Passive modernization?'. The index is calculated as: $\vartheta = \sqrt{\sum_{i=1}^{n}\left({}^{y_i}/_{y_m} - 1\right)^2 * {}^{p_i}/_{p_m}}$ where y denotes the index concerned and p the population for a given region (i) and for Italy (m). The index is basically a weighted coefficient of variation. Therefore, its lowest value is zero (no dispersion), while the maximum value is determined by the sample size. Clearly, a lower value of the index over time indicates sigma-convergence, i.e. a lower dispersion around the mean.

Figure 5: Expenditure on education per child aged 6 – 10 in 1870, 1895 and 1928 (Italy = 1).
Sources: see Figure 4.

The descriptive evidence suggests that decentralized primary education hindered convergence in schooling as it locked Italy's regions into a human capital trap, because of large wealth and income disparities. The results of centralization are very clearly discernible in the municipalities' balance sheets. However, the effects on the actual supply of education need to be explored further.

Figure 6 displays the number of state schools per 1,000 pupils subject to primary education in 1877, 1907 and 1930. The first row of Table 2 reports the pattern of regional sigma-convergence over the long run. There is no sign of a marked discontinuity after 1911, but the dispersion is reduced to a larger extent in the Interwar period, especially after 1921. It is also worth noting that the Daneo-Credaro Reform might have had different effects in different macro-areas of Italy. Southern regions did not catch up with the northwest. Instead, central regions performed well and converged with the North fully, with a remarkable acceleration after 1911. This is a point worth stressing: the improvement observed must be mainly attributed to public policy, since the central regions would not manage to converge in terms of income per capita until well after the Second World War.[76] As Figure 7 shows, the dispersion in the number of teachers per 1,000 children exhibits a similar pattern, with a pronounced reduction at the beginning of the 1930s (cf. Table 2, third row, for the analysis of sigma-convergence).

[76] Felice, 'Regional value added'.

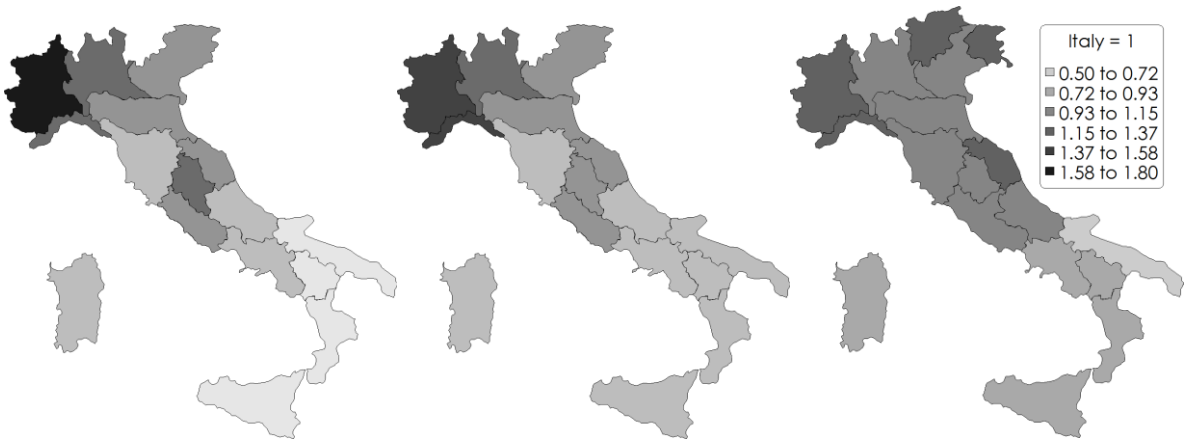

Figure 6: State schools per 1,000 children (6 – 10) in 1877, 1907 and 1930 (Italy = 1).

Source: DGS, *Statistica della istruzione elementare*; MPI, *L'Istruzione primaria e popolare*; ISTAT, *Statistica dell'Istruzione Elementare,* various years.

Index / Year	1877	1885	1895	1907	1921	1928	1930	1935
N. Schools	0.329	0.286	0.281	0.241	0.279	0.235	0.187	0.227
GER	0.454	0.395	0.344	0.236	0.305	0.139	0.115	0.117
N. Teachers	0.329	0.294	0.281	0.245	0.276	0.296	0.250	0.221

Table 2: Indices of sigma-convergence for three different measures of schooling, 1877 – 1935.

Source: see text.

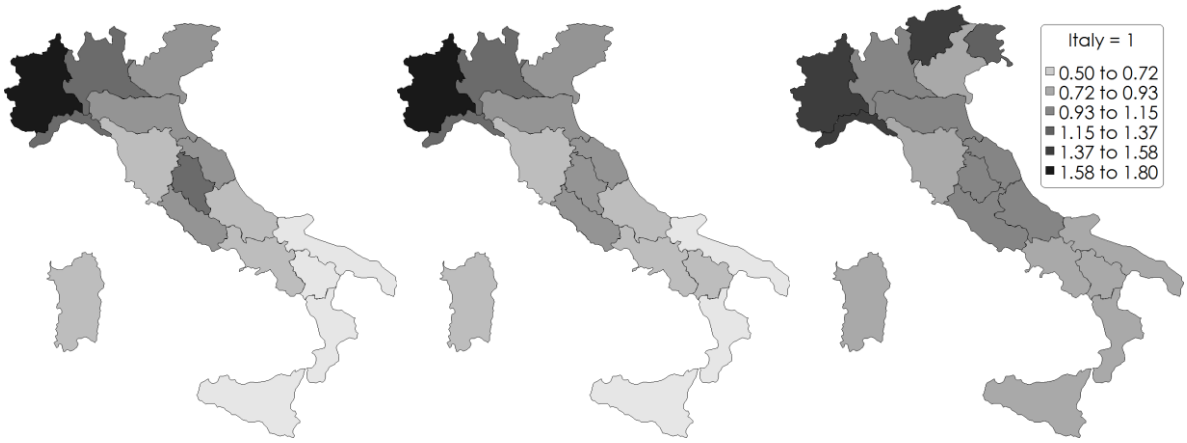

Figure 7: Teachers per 1,000 children (6 – 10) in 1877, 1907 and 1930.

Source: see Figure 6.

The Gross Enrolment Ratio (GER) reveals a somewhat different trend. Figure 8 shows the regional distribution of the index in different benchmark years. Despite their catch-up potential, the southern regions converged slowly, as sigma-convergence clearly shows (second row of Table 2).

If any, two discontinuities on the eve of the twentieth century and in the 1920s can be identified, which are largely connected to education policy (cf. Section II).

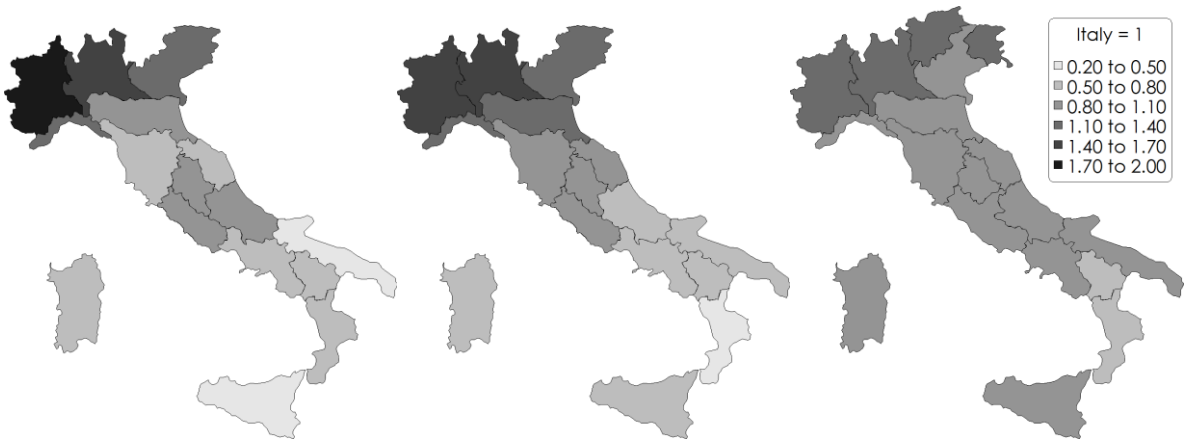

Figure 8: Gross Enrolment Ratio (age 6 – 10) in 1877, 1907 and 1930.

Source: see Figure 6.

To sum up, the descriptive evidence is mixed, and the effects of the Daneo-Credaro Reform on the regional distribution of schools, enrolments and teachers are less discernible than its impact on the municipalities' balance sheets. However, these results suggest that, to some extent, and despite the reduced scope for convergence after the turn of the century, Italy's regions experienced fewer differences in schooling in the Interwar period than in the nineteenth century. What were the mechanisms at work? Did the effect of centralization have an impact on schooling via education funding? Did it improve attendance by reinforcing monitoring, governance and sanctions? Did it affect quality teaching?

The econometric model described in Section III offers further insights into the patterns observed. Descriptive summary statistics are shown in Table 3 below.

Variable	Min	Max	Mean	St. Dev.	CV
Schools per 1,000 Children (6 - 10)	3.1399	52.0772	19.2914	8.8920	0.4609
Gross Enrolment Ratio Public Schools	0.1128	1.4282	0.7588	0.3124	0.4117
Teacher to Children (6 - 10) Ratio	3.1663	37.3746	17.2633	6.8439	0.3964
Education % Municipal Revenues	0.0373	0.3520	0.1590	0.0661	0.4161
Fiscal Capacity (at 1938 Prices)	0.1611	2.9956	0.9750	0.5457	0.5597
Share of LF in Agriculture	26.8857	85.6283	60.6057	11.5774	0.1910
Urban Population Density	22.2159	224.8972	82.5539	46.8884	0.5680
Charity Expenditure % Municipal Budget	0.0013	0.1897	0.0474	0.0359	0.7569
Lagged (-10) Adult Literacy Rates 15+	7.6393	98.5787	44.8769	24.9186	0.5553
Incidence of Child Labour	13.1200	92.7000	48.9252	19.6046	0.4007
Life Expectancy at Birth	27.6000	60.2800	43.7460	9.0375	0.2066
Ratio: Land Surtaxes on Cons. Surtaxes	0.1098	3.6234	1.0982	0.7407	0.6745
Share of Children 6 - 10 in Private Schools	0.0039	0.1418	0.0398	0.0303	0.7612

Table 3: Summary statistics for Italy's regions, 1863 – 1936.

Sources: see text.

When the supply of schools is taken into account, a regression for the whole period (column 1 in Table 4) shows that spending capacity does not significantly affect the dependent variable: the coefficient is non-significant and rather small. Literacy has a positive effect on schooling as expected and charitable expenditure by the municipalities crowds out expenditure on education. The coefficients of the dummies for the southern and central regions have both a negative sign, and a large magnitude. Very similar results are obtained when the number of teachers per children is used as the dependent variable, but spending capacity has a statistically significant and larger effect than in the case of schools (column 2). Supply-side factors do not seem to affect enrolments (column 3), which instead, seem to be related to society's literacy and child labour, as expected. The share of the work force in agriculture is positively associated to enrolments. This result could possibly be influenced by the good performance of the central regions, where agriculture was still predominant throughout the period, even in the Interwar period. As far as expenditure on education (% revenues) is concerned, the results tally with expectations: supply-side determinants are indeed important. While local fiscal policy à la A'Hearn et al. is a strong determinant of the share of resources invested in education, spending capacity has a negative sign: this casts doubt on the hypothesis that poor and disadvantaged regions would necessarily

make less of an effort to promote education – which is somewhat confirmed by the non-significant coefficient of the macro-regional dummy for the southern regions.

Whole period, 1863 – 1936	(1) Schools per 1,000 children	(2) Teachers per 1,000 children	(3) GER	(4) Education % Municipal Revenues
Fiscal Capacity (at 1938 Prices)	0.311	1.807**	0.031	-0.040***
	(0.019)	(0.142)	(0.053)	(-0.330)
Ratio: Land Surtaxes on Cons. Surtaxes	-0.557	0.320	0.019	0.020***
	(-0.046)	(0.035)	(0.044)	(0.229)
Lagged (-10) Adult Literacy Rates 15+	0.123**	0.121***	0.007***	0.001
	(0.345)	(0.442)	(0.570)	(0.256)
Life Expectancy at Birth	0.179	0.207**	0.005	-0.002
	(0.182)	(0.274)	(0.135)	(-0.285)
Incidence of Child Labour	0.040	0.003	-0.005***	-0.001*
	(0.089)	(0.009)	(-0.331)	(-0.215)
Share of LF in Agriculture	0.126***	0.068**	0.006***	0.000
	(0.165)	(0.115)	(0.240)	(0.076)
Charity Expenditure % Municipal Budget	-19.782*	-28.914***	0.525	-0.768***
	(-0.081)	(-0.153)	(0.061)	(-0.428)
Population Density	-0.016*	-0.019***	-0.000	-0.000
	(-0.096)	(-0.153)	(-0.013)	(-0.020)
Share of Children 6 - 10 in Private Schools	-17.597	-10.372	-0.142	-0.013
	(-0.060)	(-0.046)	(-0.014)	(-0.006)
Time	-2.233	0.997	0.534***	0.125***
	(-6.196)	(3.594)	(42.312)	(47.333)
Time Squared	0.001	-0.000	-0.000***	-0.000***
	(6.728)	(-3.333)	(-42.292)	(-46.642)
South-Islands Dummy	-8.480***	-6.685***	-0.155***	-0.003
	(-0.472)	(-0.484)	(-0.246)	(-0.021)
North-East-Centre Dummy	-4.673***	-5.417***	-0.154***	0.007
	(-0.258)	(-0.388)	(-0.243)	(0.055)
Constant	1,943.655	-1,010.709	-507.121***	-119.852***
	(.)	(.)	(.)	(.)
Observations	182	182	182	182
Adjusted R-squared	0.839	0.879	0.870	0.523

Robust normalized beta coefficients in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4 – Econometric model, whole period: 1863 – 1936.

When the model is applied separately to the two periods, i.e. 1863 – 1911 and 1912 – 1935, the results disclose the difference between the two phases of Italy's education policy. Table 5 shows the results for pre-1911 years. Spending capacity has a significant impact on the supply of

schooling for all the measures used besides enrolments. The effect is not large: an increase equal to one Lira (1938 prices) is associated with an increase of two teachers per 1,000 children.[77] Local fiscal policy and political mechanism mattered as well, but the effect is also relatively small given the nature of the index: while a one-unit increase in the variable is remarkable, the effect of such a change is an improvement in the number of schools and teachers per 1,000 children of just a half-unit. The effect of agricultural employment remains positive. As the macro-regional dummies show, the gap between the three areas of the country is remarkable in this phase. However, a North-South gap does not characterize the share of revenues invested in schooling.

[77] The average difference in fiscal capacity (in 1938 prices) between the north and the south of the country in 1907 is approximately equal to one Lira.

1863 – 1911	(1) Schools per 1,000 children	(2) Teachers per 1,000 children	(3) GER	(4) Education % municipal revenues
Fiscal Capacity (at 1938 Prices)	1.575*	1.916**	0.065	-0.028*
	(0.129)	(0.157)	(0.098)	(-0.243)
Ratio: Land Surtaxes on Cons. Surtaxes	0.637**	0.600**	0.043***	0.014**
	(0.101)	(0.095)	(0.124)	(0.226)
Lagged (-10) Adult Literacy Rates 15+	0.066	0.060	0.011***	0.001*
	(0.216)	(0.196)	(0.678)	(0.355)
Life Expectancy at Birth	0.262**	0.258**	0.011**	0.002
	(0.248)	(0.244)	(0.193)	(0.179)
Incidence of Child Labour	-0.021	-0.027	-0.004***	-0.001
	(-0.061)	(-0.078)	(-0.201)	(-0.154)
Share of LF in Agriculture	0.097***	0.096***	0.006***	0.000
	(0.176)	(0.174)	(0.184)	(0.059)
Charity Expenditure % Municipal Budget	-46.123***	-38.599***	-0.161	-0.367
	(-0.174)	(-0.145)	(-0.011)	(-0.145)
Population Density	-0.002	-0.001	0.000	-0.000
	(-0.016)	(-0.011)	(0.072)	(-0.097)
Share of Children 6 - 10 in Private Schools	-18.745	-18.336	-0.785	-0.080
	(-0.125)	(-0.122)	(-0.096)	(-0.056)
Time	21.881***	23.807***	1.084***	-0.220***
	(64.170)	(69.757)	(58.339)	(-67.631)
Time Squared	-0.006***	-0.006***	-0.000***	0.000***
	(-63.988)	(-69.606)	(-58.365)	(67.977)
South-Islands Dummy	-6.675***	-7.060***	-0.038	0.007
	(-0.653)	(-0.690)	(-0.068)	(0.068)
North-East-Centre Dummy	-4.601***	-4.931***	-0.111**	0.001
	(-0.440)	(-0.471)	(-0.194)	(0.013)
Constant	-20,679.473 ***	-22,483.991 ***	-1,021.820 ***	206.141 ***
	(.)	(.)	(.)	(.)
Observations	96	96	96	96
Adjusted R-squared	0.890	0.893	0.903	0.658

Robust normalized beta coefficients in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5 – Econometric model, period 1: 1863 – 1911.

How does this pattern change when we look at the post-1911 years? Fiscal capacity has a much smaller coefficient, which is never statistically significant, independent of the index of schooling. The proxy for fiscal policy is still significant, but has a negative sign. However, this remarkable change is not likely to be connected to education policy. In fact, the first wave of Italy's economic development was connected to growing income and consumption, which raised the amount of

indirect taxes compared to those on land and property, especially in the north-western regions. Therefore, more education may be associated with a reduction in the ratio proxying municipal fiscal policy. Literacy has a positive effect. Agricultural employment is more weakly correlated with schooling than in the pre-1911 years. However, the correlation with the number of schools is positive, significant and larger than before, which may suggest that the interest-free state loans provided for by the 1911 reform prompted the construction of schools in rural and disadvantaged areas. The South dummy shows that the southern regions became able to invest more resources compared to their budget than prior to 1911, thanks to state transfers to the provincial schooling boards, which then redistributed the funds to the city councils. The premium of southern regions in the Interwar years is large: they spent 14 percent more on education (as a share of ordinary revenues) than the northern and central regions did (Table 6) – showing again that the 1911 reform had a strong impact on patterns of expenditure, but possibly a more limited one on education.

1912 – 1936	(1) Schools per 1,000 children	(2) Teachers per 1,000 children	(3) GER	(4) Education % municipal budget
Fiscal Capacity (at 1938 Prices)	0.861	0.890	0.084	0.025
	(0.073)	(0.095)	(0.274)	(0.192)
Ratio: Land Surtaxes on Cons. Surtaxes	-4.151***	-1.509**	-0.051	0.027**
	(-0.312)	(-0.143)	(-0.147)	(0.185)
Lagged (-10) Adult Literacy Rates 15+	0.145	0.175***	0.005***	0.003***
	(0.456)	(0.696)	(0.641)	(0.755)
Life Expectancy at Birth	0.039	0.148	-0.003	-0.003*
	(0.030)	(0.141)	(-0.081)	(-0.226)
Incidence of Child Labour	0.136	0.042	-0.002	0.003***
	(0.202)	(0.078)	(-0.100)	(0.363)
Share of LF in Agriculture	0.279**	0.116	0.005	0.001
	(0.507)	(0.266)	(0.319)	(0.129)
Charity Expenditure % Municipal Budget	-6.358	-34.983**	1.007*	-0.224
	(-0.042)	(-0.288)	(0.255)	(-0.135)
Population Density	-0.013	-0.023***	-0.000	-0.000*
	(-0.112)	(-0.264)	(-0.154)	(-0.139)
Share of Children 6 - 10 in Private Schools	-6.212	11.560	-0.180	0.518
	(-0.022)	(0.051)	(-0.025)	(0.168)
Time	-3.271	-46.023	0.788	1.174**
	(-3.860)	(-68.341)	(36.019)	(127.666)
Time Squared	0.001	0.012	-0.000	-0.000**
	(4.016)	(68.453)	(-36.193)	(-128.242)
South-Islands Dummy	-9.734*	-5.701**	-0.084	0.144***
	(-0.716)	(-0.528)	(-0.240)	(0.973)
North-East-Centre Dummy	-5.622*	-5.360***	-0.084	0.026
	(-0.415)	(-0.498)	(-0.240)	(0.178)
Constant	3,024.202	44,188.351	-753.827	-1,124.122**
	(.)	(.)	(.)	(.)
Observations	86	86	86	86
Adjusted R-squared	0.596	0.770	0.563	0.792

Robust normalized beta coefficients in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6 – Econometric model, period 2: 1912 – 1936.

A formal Chow test confirms that the two separate regressions fit the data far better than a single one for the whole period. The test is computed as:

$$\frac{[RSS_w - (RSS_1 + RSS_2)]/k}{(RSS_1 + RSS_2)/\ (N_1 + N_2 - 2k)}$$

Where $\boldsymbol{RSS}$ is the sum of squared residuals, $\boldsymbol{N}$ equals the number of observations for the whole period and $\boldsymbol{k}$ the number of parameters in the model (always the same across specifications). The subscripts indicate whether the model for the whole period ($\boldsymbol{w}$) or the two separate regressions ($\mathbf{1}$ and $\mathbf{2}$) are taken into account. The null hypothesis that the two models are the same is rejected if the statistics are greater than an F-stat with $\boldsymbol{k}$ and $\boldsymbol{N_1 + N_2 - 2k}$ degrees of freedom. Since the critical value is 2.039 (α = 0.01) and the statistics have a greater value for any index of schooling regressed on the independent variables,[78] the null is rejected, i.e. the two models for the pre-1911 and post-1911 years do indeed describe different patterns in the data.

VI

The problem of Italy's regional disparities is more pressing today than ever before. This research investigates the education system and on its influence on regional disparities in human capital, largely inherited from pre-unification states. It argues that decentralized primary education slowed convergence up to the Great War, because of the relationship between the supply of schooling and the municipalities' spending capacity: a human capital trap. The system was largely centralized in 1911 as a result of the Daneo-Credaro Reform, and the evidence shows that the new law constituted a step forward. The trap was weakened by reducing disparities in expenditures and by scaling down the importance of local available resources for investments in schooling. A substantial discontinuity between 1911 and 1921 is confirmed by the econometric estimates. Furthermore, descriptive evidence shows that overall sigma-convergence somewhat accelerated after 1921, especially as far as enrolments are concerned. The regional dispersion characterising the number of teachers and schools went down later as well, possibly influenced by growing centralization in primary-level education brought about by the Gentile Reform.

The situation of the north-eastern and central regions improved to a large extent after the reform – they caught up fully, and independently of the indicator of schooling analysed. The measures

[78] Model for the number of schools: 4.23; model for the number of teachers: 3.98; model for enrolments: 3.87; model for education expenditure: 14.55.

introduced in 1911 were more beneficial there than in the southern regions. Additionally, since the central regions converged to the income levels of the northwest only in the period starting after the Second World War, the catch-up in schooling must be largely attributed to the Daneo-Credaro Reform. This is in line with recent interpretations of regional disparities in the long run: the accumulation of human capital in the Interwar period is likely to have sparked a virtuous circle that allowed the central regions to close the gap with the Industrial Triangle of Piemonte, Lombardia and Liguria during Italy's Golden Age of economic growth (1950-1973).

However, the impact of the reform on schooling was constrained by a number of factors. The Great War and the Spanish flu might have had disruptive effects on its implementation and on the accumulation of human capital. After that, changes in the political arena and the growing attention paid to the military sector at the end of the 1930s circumscribed the scope and effectiveness of the reform to just a few years – roughly between 1920 and 1935. This limited impact was unable to fully re-shape the pattern of human capital disparities observed across Italy's regions. Moreover, the negative effects of decentralized primary education were likely to be self-reinforcing, and to be felt well beyond 1911. Firstly, education requires teachers: the large pool of illiterates from which Italy recruited its educational staff might well have negatively influenced the quality of education, with subsequent effects on enrolments and human capital accumulation. This problem is likely to have affected the southern regions and rural areas of the country, where the supply of human capital and teachers had been insufficient for many years prior to the unification of the Kingdom of Italy. Secondly, low educational levels might have influenced the development of local institutions: qualitative and quantitative evidence put these forward as determinants of human capital accumulation.

This leaves us with the question: what if Italy's educational system had been centralized before 1911? This paper has provided a preliminary answer. The several reforms introduced after the turn of the century certainly made a first contribution to the development of Italy's human capital. If the state had intervened earlier and more decidedly, one may venture, the human capital gap across Italian regions on the eve of the Second World War might have been reduced to a large extent, and the country's overall economic growth largely improved. In any case, more research is welcomed in the field. In particular, the construction of a counterfactual on the effect of decentralized versus centralized schooling would shed further light on the issue.

When the Italy's national educational systems are compared with those of other countries, one may wonder why a decentralized system worked well in Germany and North America but not in Italy. The picture, however, is more complex than it appears at first blush. When one considers regional inequalities *within* states, it is difficult to say that the educational systems of Germany and North America performed well in the late nineteenth century. Besides that, nineteenth-century Italy presented very large regional economic inequalities, especially when diverse dimensions of economic development are taken into account. The North-South gap in literacy and schooling stands out in Italy after the unification of the country. These features may explain why, in the absence of a strong redistributive mechanism, delocalized state control and different socioeconomic and institutional features, Italy's education system did not work well until it moved towards centralization.

The issue of regional disparities remains central both in Italy's economic history and in today's public policy. This paper suggests that, although a decentralized administrative system can theoretically provide powerful incentives to promote economic activity and enhance the meeting of supply and demand, it also conceals substantive dangers from a regional, long-term perspective.

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Data Appendix

Schools per 1,000 children aged 6 - 10	1862	1869	1877	1884	1895	1907	1921	1928	1930	1935
Piemonte	20.97	22.04	22.79	24.32	24.30	25.60	28.46	34.03	34.03	40.11
Liguria	13.76	14.69	17.27	18.70	19.78	23.85	23.40	38.27	31.57	33.63
Lombardia	16.00	17.28	18.08	19.21	18.40	19.82	24.36	27.41	26.27	29.86
Trentino Alto Adige								32.53	33.44	52.29
Veneto		10.23	14.66	15.84	15.07	16.04	24.83	19.34	26.60	27.54
Friuli Venezia Giulia								26.95	30.26	34.43
Emilia	7.30	10.48	13.71	16.56	15.65	19.03	26.31	26.41	29.46	31.37
Toscana	4.50	7.83	10.24	11.53	11.54	12.93	22.94	24.49	27.01	29.69
Umbria	9.14	12.11	14.99	18.26	16.20	18.31	32.81	31.45	31.40	39.61
Marche	8.38	10.94	16.41	19.28	17.44	18.26	32.83	28.92	29.62	30.11
Lazio			13.59	16.39	15.09	18.02	20.01	23.38	26.78	27.32
Abruzzi e Molise	5.84	8.67	11.91	13.73	12.51	14.92	26.26	32.49	28.11	30.03
Campania	5.35	7.54	11.27	12.15	12.00	13.55	19.69	20.63	20.32	21.77
Puglia	3.14	5.30	8.95	10.94	10.74	13.08	16.03	19.41	17.95	18.66
Basilicata	4.06	5.77	8.57	11.22	11.13	12.17	19.98	19.08	19.98	21.17
Calabria	5.44	6.31	9.34	11.40	10.69	12.43	22.13	19.60	20.36	21.36
Sicilia	3.31	5.43	7.63	9.78	10.71	13.60	15.49	17.78	20.40	23.92
Sardegna	9.75	9.21	11.73	13.07	13.20	14.38	20.43	21.54	19.21	28.74
Italia	9.18	11.09	13.71	15.41	15.00	16.94	22.94	24.40	25.52	28.34

Table A1 – Number of schools per 1,000 children aged 6 – 10 inclusive (subject to compulsory primary schooling) in Italy's regions, 1863 – 1935.

Gross Enrolment Ratio children 6 - 10	1862	1869	1877	1884	1895	1907	1921	1928	1930	1935
Piemonte	0.99	1.15	1.15	1.17	1.07	1.08	0.83	0.98	1.09	1.17
Liguria	0.53	0.67	0.80	0.86	0.88	1.10	0.79	0.97	1.04	1.13
Lombardia	0.79	0.88	0.96	1.02	0.99	1.01	0.97	0.95	1.07	1.16
Venezia Tridentina								1.10	1.25	1.40
Veneto		0.60	0.85	0.90	0.84	0.95	1.12	0.93	1.07	1.05
Venezia Giulia								1.06	1.19	1.24
Emilia	0.25	0.40	0.62	0.74	0.77	1.02	1.03	1.02	1.09	1.12
Toscana	0.18	0.32	0.44	0.53	0.56	0.76	0.84	0.89	0.97	1.06
Marche	0.21	0.32	0.43	0.54	0.60	0.74	0.95	0.91	1.03	1.04
Umbria	0.22	0.29	0.55	0.58	0.63	0.76	0.92	0.88	0.98	1.08
Lazio			0.52	0.67	0.69	0.83	0.72	0.97	1.02	0.97
Abruzzi e Molise	0.21	0.36	0.52	0.55	0.54	0.69	0.76	0.89	1.03	1.05
Campania	0.22	0.33	0.48	0.48	0.51	0.56	0.62	0.69	0.84	0.93
Puglia	0.14	0.22	0.30	0.39	0.45	0.62	0.66	0.83	0.85	0.87
Basilicata	0.15	0.24	0.33	0.42	0.41	0.53	0.68	0.78	0.83	0.89
Calabria	0.18	0.21	0.32	0.38	0.29	0.49	0.41	0.79	0.80	0.81
Sicilia	0.11	0.20	0.29	0.37	0.45	0.68	0.59	0.65	0.84	0.91
Sardegna	0.30	0.35	0.44	0.51	0.47	0.72	0.72	0.88	0.97	1.11
Italia	0.39	0.51	0.63	0.69	0.69	0.82	0.81	0.88	0.98	1.03

Table A2 – Gross Enrolment Ratios (children enrolled % aged 6 – 10) in Italy's regions, 1863 – 1935.

Children (6 – 10) per teacher	1862	1869	1877	1884	1895	1907	1921	1928	1930	1935
Piemonte	47.92	44.35	43.89	40.01	41.23	40.75	44.92	30.53	29.83	26.76
Liguria	71.40	62.80	57.92	50.37	50.14	41.32	49.75	28.49	32.70	29.49
Lombardia	61.29	55.87	55.31	49.76	54.47	51.70	49.96	42.70	40.61	38.16
Trentino Alto Adige								30.99	30.46	27.48
Veneto		90.75	68.22	63.02	66.19	62.66	57.16	54.93	51.95	48.21
Friuli Venezia Giulia								39.85	38.01	35.42
Emilia	131.62	94.05	72.96	60.35	63.94	53.08	54.79	45.47	47.04	44.38
Toscana	189.30	119.34	97.70	84.87	87.00	75.29	64.47	50.83	49.40	45.77
Umbria	110.81	82.76	66.69	54.49	61.90	54.93	47.11	40.46	42.56	40.95
Marche	124.45	90.99	60.92	54.76	58.13	53.59	50.56	49.24	45.96	37.70
Lazio			73.60	56.29	66.25	54.15	58.59	45.02	42.65	46.40
Abruzzi e Molise	171.34	113.81	83.94	73.77	79.91	70.48	56.72	42.60	46.13	43.69
Campania	184.95	131.92	88.73	81.34	84.00	79.71	60.04	59.25	56.21	53.70
Puglia	315.82	188.07	111.76	90.20	93.14	79.02	66.38	64.54	59.01	55.85
Basilicata	245.10	173.31	116.64	88.71	89.87	83.23	59.56	54.28	53.06	47.44
Calabria	180.33	159.70	107.05	87.65	93.76	87.00	63.09	62.62	61.03	56.46
Sicilia	303.33	184.26	131.07	99.02	93.01	75.60	73.56	55.52	52.09	45.98
Sardegna	107.65	107.72	85.25	77.13	75.73	73.03	62.98	52.61	50.29	45.92
Italia	107.42	87.62	72.93	63.57	66.73	60.41	56.65	46.89	45.80	42.91

Table A3 – Ratio between the number of children aged 6 - 10 and the teachers employed in schools across Italy's regions, 1863 – 1935.

Edu. exp. % tot. revenues	1863	1870	1877	1884	1895	1907	1912	1921	1928	1930	1935
Piemonte	0.21	0.14	0.18	0.20	0.20	0.22	0.28	0.21	0.16	0.15	0.10
Liguria	0.14	0.08	0.11	0.14	0.14	0.18	0.17	0.16	0.14	0.12	0.07
Lombardia	0.13	0.10	0.13	0.15	0.19	0.23	0.25	0.20	0.15	0.14	0.09
Trentino Alto Adige							0.32	0.22	0.15	0.15	0.14
Veneto	0.17	0.10	0.16	0.20	0.16	0.24	0.24	0.18	0.14	0.12	0.08
Friuli Venezia Giulia							0.28	0.20	0.13	0.13	0.13
Emilia	0.23	0.13	0.13	0.14	0.16	0.20	0.27	0.20	0.15	0.13	0.09
Toscana	0.09	0.04	0.06	0.09	0.11	0.14	0.22	0.16	0.12	0.11	0.07
Umbria	0.16	0.11	0.11	0.11	0.09	0.19	0.24	0.18	0.14	0.12	0.07
Marche	0.12	0.11	0.11	0.11	0.15	0.20	0.25	0.20	0.16	0.14	0.09
Lazio	0.14	0.07	0.08	0.09	0.09	0.29	0.35	0.24	0.16	0.13	0.08
Abruzzi e Molise	0.11	0.10	0.13	0.16	0.15	0.22	0.33	0.27	0.22	0.21	0.18
Campania	0.07	0.06	0.09	0.10	0.10	0.19	0.23	0.22	0.21	0.19	0.14
Puglia	0.08	0.07	0.11	0.13	0.13	0.20	0.34	0.27	0.22	0.20	0.14
Basilicata	0.10	0.06	0.12	0.16	0.15	0.22	0.34	0.34	0.35	0.29	0.14
Calabria	0.11	0.10	0.14	0.16	0.14	0.19	0.23	0.19	0.15	0.12	0.05
Sicilia	0.06	0.08	0.10	0.12	0.13	0.16	0.18	0.22	0.26	0.20	0.06
Sardegna	0.17	0.09	0.11	0.13	0.14	0.22	0.32	0.23	0.16	0.14	0.10

Table A4 – Expenditure on education as % of the total revenues to municipalities across Italy's regions, 1863 – 1935.

Edu. exp. per children 6 – 10	1863	1870	1877	1884	1895	1907	1912	1921	1928	1930	1935
Piemonte	1.26	1.53	1.75	2.00	2.48	3.97	5.83	14.33	20.94	19.00	14.14
Liguria	1.11	1.64	1.78	2.05	3.03	6.03	6.83	21.93	33.67	28.60	15.92
Lombardia	0.92	1.22	1.30	1.51	2.30	4.79	6.21	17.24	25.81	23.12	16.40
Trentino Alto Adige							16.26	20.93	24.55	22.80	18.41
Veneto	0.85	1.14	1.24	1.40	1.89	4.10	4.65	10.40	14.87	12.88	7.91
Friuli Venezia Giulia							15.55	19.59	22.73	21.77	19.36
Emilia	0.99	1.38	1.42	1.55	2.06	4.16	6.58	15.52	22.47	19.77	13.03
Toscana	0.56	1.13	1.00	1.02	1.59	2.78	4.82	11.21	16.19	14.20	9.23
Umbria	1.01	1.24	1.13	1.13	1.62	3.70	4.99	10.56	14.89	12.58	6.80
Marche	0.85	1.23	1.09	1.13	1.90	3.68	5.10	12.39	18.05	15.63	9.57
Lazio	1.63	1.95	1.73	1.80	3.03	11.93	15.35	29.29	40.14	33.89	18.27
Abruzzi e Molise	0.37	0.59	0.75	0.92	1.24	2.56	4.37	10.35	14.99	14.15	12.05
Campania	0.35	0.90	1.01	1.15	1.52	3.32	4.15	14.32	22.23	19.80	13.74
Puglia	0.32	0.79	0.93	1.09	1.46	2.80	5.10	13.08	19.28	17.04	11.44
Basilicata	0.32	0.46	0.86	1.17	1.27	2.40	4.05	13.70	21.21	17.42	7.96
Calabria	0.26	0.60	0.80	0.97	1.10	2.10	2.93	5.94	8.28	6.63	2.51
Sicilia	0.38	0.76	0.88	1.05	1.54	2.57	3.32	13.61	21.61	16.76	4.61
Sardegna	0.77	0.87	1.01	1.16	1.45	3.17	5.15	9.71	13.26	11.56	7.29

Table A5 – Expenditure on education per child aged 6 – 10 across Italy's regions, 1863 – 1935 (current Lire).

One size didn't fit all: the role of electoral franchise and fiscal capacity in the rise of schooling for all: Italy's provinces, c. 1871 – 1911

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Abstract: Italy's regions experienced different rates of human capital accumulation in the late nineteenth and early twentieth centuries. Southern regions were very disadvantaged when the unification of the country took place in 1861, they caught up at a very slow pace – and a remarkable regional divide in education persisted until the Interwar period. While previous hypotheses have focused on the role played by fiscal capacity, this paper sheds new light on the effect that enfranchisement had on the growth of schooling. The presence of large regional disparities in local electoral franchise is confirmed by the data; however, the relationship between franchise, the extent of direct taxation and municipal fiscal capacity is weak at best. If the impact of these factors is analysed separately through a number of econometric models, fiscal capacity turns out to be the most significant determinant of education across Italy's provinces. Therefore, claims that political mechanisms determined the rise of mass schooling must be put into perspective. These results, based on a regional analysis, suggest that decentralized education systems may not be optimal for the rise of mass schooling as is commonly thought. Italy's nineteenth-century educational system slowed down the development of human capital in rural and southern regions, with immense costs in terms of future prospects for economic growth and human development.

Introduction

Economic growth and human development are inextricably bound to human capital accumulation (cf. Hanushek and Woessmann 2009, UNDP 2013). Although recent research has shed new light on global and regional patterns of literacy and numeracy since the early modern period (cf. A'Hearn et al. 2009), little is known about the way that educational systems have influenced the development of human capital. We do know that public schooling has played a central role in this matter since the late nineteenth century. Further, education policy lies at the heart of mass education (cf. Mitch 2013). The decentralized governance and funding of schools boosted human capital accumulation in Germany and the US, and they forged ahead of the rest of the world in the early twentieth century (cf. Goldin 2001 and Lindert 2003). However, recent research casts some doubt on the benefits brought about by decentralized education. In this connection, the role played by local elites stands out. In a context characterised by extreme inequality in the distribution of wealth, human capital and political influence, local elites will ensure the development of institutions aimed to preserve their economic and political primacy (cf. Engerman and Sokoloff 2005). Thus, different regions within a national education system may experience different trajectories of human capital accumulation. Go and Lindert (2010) confirm that differences in affordability and political voice caused large disparities in schooling across states in mid-nineteenth century US. By the same token, Cinnirella and Hornung (2013) prove the existence of a link between land inequalities and schooling across counties in nineteenth century Prussia. Go and Park (2012) explore similar dynamics in colonial Korea, where the spread of mass schooling was hampered by local elites. Chaudary et al. (2012) investigate the development of schooling in the BRICs. They find that decentralized education did not work well because of the absence of democratic mechanisms, which in turn led to the tight control of public institutions by restricted ruling elites who limited the development of the public school.

The evidence indicates that decentralised education systems are characterised by an inherent tension. They can promote the accumulation of human capital at the frontier by favouring the meeting of local supply and demand – and this in turn can push a country onto a path of sustained economic growth. At the same time, local governance and funding exacerbate existing regional disparities in schooling, with potential negative consequences on the country's comparative performance in human capital accumulation and economic development. Hence, decentralised education may actually *slow* the aggregate growth of human capital in the presence

of very large regional disparities. Despite these concerns, thus far no serious effort has been made to evaluate the impact of more centralised systems. Mitch pioneered this kind of inquiry by exploring the growth of state intervention in nineteenth-century England. Increased access to subsidised primary schooling accounts for about 25 percent of enrolment increases for children aged 5 – 14 over the period 1833 – 1899. This was a substantial impact, although other demand-side factors might have played even a larger role in the diffusion of schooling (Mitch 1986). So, the question of whether decentralised education systems are actually best for promoting human capital accumulation remains open, and debated by economic historians, economists and policy-makers alike (cf. Mansuri and Rao 2013).

The issue can be summarised by the following research questions: (1) why does decentralized education fail to boost human capital accumulation in the presence of regional social and economic inequalities? What factors account for such a failure? Naturally, the two questions are intertwined. The present paper aims to shed new light on the topic by looking at Italy in the late nineteenth and early twentieth century. For a variety of reasons, the country represents an important case study for the understanding of educational policy, as well as its influence on schooling. First, the public system established in 1859 set forth that the funding and management of schools would be decentralised at the municipal level. Second, Italy was characterised by very large regional inequalities in literacy: in 1871, the share of literate people in most of the southern provinces ranged between 10 and 15 percent. At the same time, the north of the country had literacy rates greater than 50 percent, with peaks of 60 percent in Piedmont.[79] This large divide remained unchanged up to the early twentieth century. Third, the Kingdom of Italy was a late-comer economy, where educational policy might have played an important role (in the Gerschenkronian sense) in increasing human capital and, in turn, the rate of economic growth. Indeed, Italy's pattern of regional development prior to WWII was largely determined by the regional distribution of human capital (Felice 2012); hence, understanding if – and even more importantly, how – the education system reinforced human capital regional inequalities is of primary importance for shedding light on the broader issue of Italy's long-term regional divergence.

[79] A detailed description of Italy's provinces, regions and macro-areas is provided by figures A1, A2 and A3 in the Appendix.

The paper is structured as follows: Section I briefly surveys the literature on education policy and schooling for late nineteenth century Italy; Section II introduces Italy's decentralized education system since it was established in 1859 and illustrates its evolution up to 1911, when the central government stepped in; Section III describes the electoral and administrative systems and their change, and connects them to the development of Italy's school by analysing descriptive statistics; Section IV describes the methodology and primary sources used to draw qualitative and quantitative evidence; Section V presents the main econometric findings on the development of schooling; Section VI presents some robustness checks; finally, Section VII draws a number of conclusions.

I. Schooling and human capital in Italy, 1859 – 1911: selected literature review

Vigo pioneered quantitative research on primary schooling across Italy's regions. He identified remarkable regional inequalities in schooling before and after the unification of the country, c. 1830 – 1900 (Vigo 1971). However, the limited availability of long-term data has long hampered research on the determinants of human capital accumulation. Furthermore, existing research on the topic has mostly dealt with Italy's national and comparative performance, while it has only marginally tackled the issue of the regional divide in schooling (cf. Vasta 1999a). Only recently has a quantitative investigation of the country's regional inequalities in education and human capital drawn renewed interest. Conte, Della Torre and Vasta (2007) have published data on adult literacy in benchmark years for the period 1871 – 2001, in an effort to come up with national and macro-regional historical figures for the Human Development Index. Felice (2007) has estimated levels of human capital across Italy's regions during the same years. These have been recently revised and improved by Felice and Vasta (2012), who have also provided figures on average years of schooling. This new evidence clarifies that Italy's human capital accumulation was slowed by large regional disparities that persisted over time. Why? The crux of the matter may rest with country's decentralized educational system. Some scholars maintain that it was a failure, given the extent of regional differences in the municipal fiscal capacity to fund primary schools in the context of a growing demand for skills along the trajectories of the Second Industrial Revolution (Zamagni 1993, Vasta 1999b). Felice and Vasta have recently confirmed that "convergence in education was significant in the Liberal Age mostly as a consequence of the huge differentials in 1871", but that "much more could be done". Unfortunately, quantitative research on the education system itself, that is, educational expenditures, number of schools, enrolments and teachers – has long lain

dormant, with the exception of work on the political and social forces that shaped reforms of Italy's education system during the late-nineteenth and early-twentieth century (cf. Bertoni Jovine 1954, De Fort 1979, Cives 1990). As a result, it has been difficult to test the aforementioned research hypotheses. Recent research has reconstructed the regional pattern of diffusion of primary schooling by adopting a long-term perspective, c. 1863 – 1936 (Cappelli 2013). This has yielded that decentralized primary schooling contributed to the persistence of Italy's regional inequalities in education, because of the tight connection between the municipalities' fiscal capacity and investment in schooling. From this vantage point, backward regions could not afford to allocate resources to primary education. This constraint was loosened only when the Daneo-Credaro Reform was approved in 1911, that is, when the government centralized the funding of primary education, decentralized governance and established a preliminary redistributive mechanism. However, A'Hearn, Auria and Vecchi (2011) contend that economic backwardness did not itself delay the rise of mass schooling. They maintain that institutional mechanisms played the largest role, following the literature on the importance of local political voice[80] that has been briefly sketched in the introduction. In fact, Italy's municipalities could levy a surtax[81] on land, property and consumption – and whether they did it or not was highly discretionary (cf. Parravicini 1958 for an overview). Hence, they argue, the investment in education that the city councils were willing to finance determined tax revenues and, in turn, fiscal capacity. This issue figures strongly into the question of whether decentralised primary schooling was indeed a failure, and further, whether the centralized primary education system introduced in 1911 improved Italy's school system and pace of human capital accumulation.

II. Italy's decentralized education system, 1859 – 1911

Italy's national primary education system was established by the Casati Law in 1859 and extended to the regions that became part of the Kingdom of Italy (1859 – 1871).[82] Under this system, education had to be offered free of charge – "proportionally to the municipalities' spending capacity and according to their people's need".[83] The first-grade primary school (lasting two years

[80] Political voice and electoral franchise are used as synonyms throughout the paper.
[81] This took the form of additional tithes on the taxes due to the central government.
[82] It is worth noting that the Law was informally extended to other Italian regions. In fact, as Cives notes, the country's education system was formally unified only in 1877 (cf. Cives 1990: 277).
[83] This liberal approach was a result of the limited state budget, the predominant role of liberal parties and the widespread perception that private education would play a significant role in educating Italy's citizens.

and starting at the age of six) was mandatory, while second-grade schools (two additional years) would only be set up in municipalities exceeding 4,000 inhabitants or in localities where secondary schools had already been established (cf. Coccìa and Della Torre 2007). The governance of the school system was centralized: the Ministry of Education set forth the curricula and established national norms regulating schooling and teachers' wages. More local bodies, like the provincial schooling board (*consiglio scolastico provinciale*, henceforth "CSP") played a merely advisory role, and were tightly controlled by the *prefetto* (prefect) on behalf of the central authority. By contrast, the funding of primary education was highly decentralized: each municipality was obliged to build schools, hire teachers and enforce compulsory attendance. Clearly then, local support for schooling was important for the development of mass primary education; yet, the decentralized system was lacking any sort of redistribution mechanism aimed at reducing the remarkable regional inequalities in local fiscal capacity (see Figure 1, which refers to 1870: it does not include Lazio as the region became part of the Kingdom only in 1871).

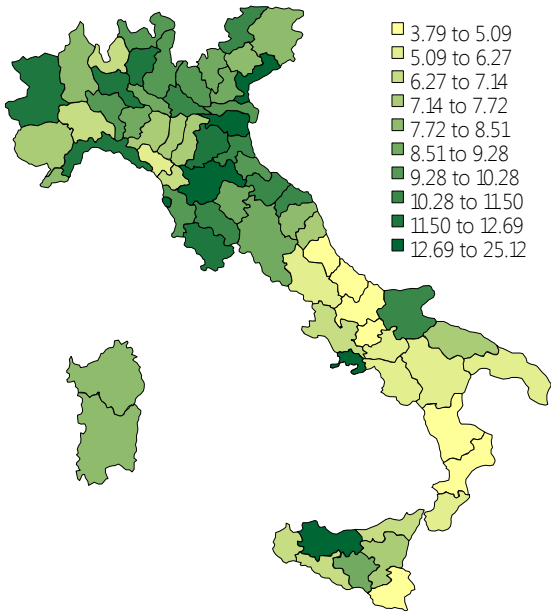

Figure 1 – Average municipal fiscal capacity in Italy's provinces, 1870.

Source: *bilanci comunali,* 1870. Notes: Municipal ordinary revenues (net of capital flows and extraordinary incomes) in per capita terms (current Lire).

Shortly after the Casati Law created the fundaments of the country's education system, the Ministry of Education conducted a series of monumental inquiries into the functioning of Italy's schools. The first attempt to provide an overview on the matter was the so-called Matteucci inquiry, published in 1865. Very detailed statistics were accompanied by reports on primary

education in major Italian cities and provinces. In 1873, the Documents on Italy's Primary Schooling (*Documenti Sulla Istruzione Elementare nel Regno d'Italia*) were published, with a final report written by Gerolamo Buonazia. This was a more comprehensive publication, concerning most of the country's provinces with an in-depth analysis of the widespread absenteeism in school, ineffective teaching and poor enforcement of compulsory education by the municipalities. Provincial summaries are available in the four volumes of the *Documenti*. Although the inquiries rely on the subjective evaluation of the inspectors, they represent an invaluable source of information for historians interested in Italy's primary education system. Furthermore, their availability throughout the late nineteenth and early twentieth century allows for a robust analysis. If a particular issue is raised in every inquiry, it is plausible that the matter was not the result of an inspector's personal view, nor even the result of the political agenda of any particular government. The identification of persistent patterns is critical to understanding how Italy's education system affected development of primary schooling across the country's regions. Some of the evidence offered by these reports is briefly summarised in Section V of the paper.

Cives (1990) and De Fort (1996) have claimed that Italy's schools remained basically unchanged until 1923, when the Gentile Law was approved in the context of rising Fascism. However, a number of reforms were passed in order to strengthen the system throughout the late-nineteenth century and prior to the Great War. The most important example prior to the turn of the century was the Coppino Reform (1877), the so-called Law on Compulsory Schooling (*Legge sull'Obbligo Scolastico*). It was prompted by two state inquiries on the matter, which pinpointed poverty and poor attendance as major constraints on the diffusion of literacy across the country's provinces. The funding of primary education was still decentralized, while the (ineffective) control exerted by the government on local bodies was fully intact. The years of compulsory schooling were raised from two to three, up to the age of nine. Furthermore, the bill sought to increase attendance by clarifying the duties of the city councils concerning primary education, and by establishing sanctions aimed at reducing parental misconduct and poor enforcement by the municipalities. The reform also provided limited subsidies for building schoolhouses and purchasing didactic material. Despite their symbolic importance, the impact of these funds was negligible. According to the Corradini inquiry (1910) the total value of loans provided by the state in the years 1878 – 88 was 23,225,018 Lire, while expenditures for schooling by the city councils in the year 1869 *only*

equalled 17,618,645 Lire[84]. Moreover, money flowed mainly to the northern regions, thus reinforcing the country's regional disparities in primary education (Figure 2). Briggs has offered a variety of possible explanations for this. "Ignorance of opportunities for state support of school construction provides a partial explanation for the sharp inverse relationship between need and support from Rome. The general poverty of the communes also contributed to the problem by leaving them without the resources needed to meet local contributions required in order to receive state aid for construction projects. [...] Large number of schools were maintained in buildings rented from local proprietors. These individuals had two reasons for opposing the construction of communally owned school buildings: they would be burdened with further tax obligations and they would lose the income from their properties rented to the school authorities" (Briggs 1978: 45). The inquiries on primary education also implied that the South's inept bureaucracy could not cope with the complicated procedures that needed to be followed to apply for (and manage) state loans.

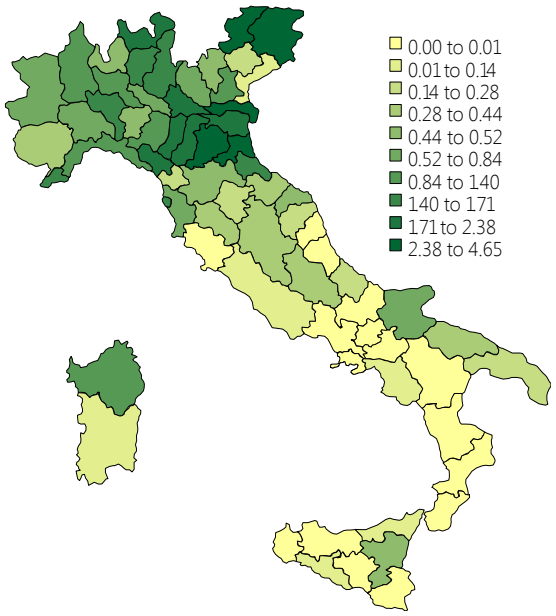

Figure 2 – Per capita loans from the central government, 1878 and 1898.

Sources: Corradini Inquiry, 1910. Notes: data are in current Lire.

The Coppino Law was destined to remain largely ineffective, as the Buonazia inquiry put forward in 1878. First, they noted, the municipalities' limited fiscal capacity was a pressing issue. Sanctioning the poor enforcement of compulsory attendance would not work, the inquiry claimed,

[84] Data on revenues, expenditure and loans are in current Lire throughout the paper. In fact, prices in Italy's Liberal Age were basically constant over time. Cf. Fratianni and Spinelli 2001.

if poverty could not be eradicated or eased by means of public policy (cf. Cives 1990: 68). Second, the city councils were reluctant to promote schooling. In prosperous regions, education received the substantial support of the leaders of the municipality. By way of contrast, in the south of the country, support for education was hindered by the dominance of large landownership, wealth inequalities and widespread poverty (Torraca inquiry, 1897).

The first years of the twentieth century were characterized by a different political and economic environment – the age of Italy's first wave of growth and Giolitti's stable governance. Spreading industrialization increased the demand for education in the most advanced regions of the country, while the first teacher unions pushed the government to take a more decisive step in order to boost the quality of schooling. The renewed intellectual and political debate on public education led to the approval of the Nasi Law (1903). The new reform regulated the employment of teachers with more universal and protective norms for those employed in public schools. Prior to the reform, the city councils held strong discretionary power concerning recruitment and layoff. Additionally, the salary of female teachers was raised to equal that of men in the event that they taught males or mixed classes. However, if this was not the case, their salary would remain *one third* of that of males, as the Casati Law had first established.

The Orlando Law followed soon thereafter, in 1904. Compulsory education was raised to twelve years and linked to the compulsory attendance of second-grade primary schools. The curricula were modified to include the *corso popolare*, a two-year programme of very basic vocational training for children. Most important, the Orlando Law raised the teachers' salary for the first time since 1886 (Cives 1990: 75) and established that the state had to pay the relative increase. Evening schools for adults were also promoted in an attempt to combat illiteracy. However, the reform did not tackle the central issue of teacher training.-

Norms concerning schooling were also included in the *Legge Speciale per il Mezzogiorno* (Special Law for the South of Italy), a 1906 set of reforms aimed at reducing the socioeconomic gap between the north and the south of the country. The new legislation allowed the state to fund the construction of schools directly in the southern regions; it increased teachers' salary in rural areas (with funds provided by the government) and pushed for a more widespread diffusion of evening schools. More decisive step towards radical change of the education system was taken after the Corradini inquiry was published in 1910. This work represented a serious effort to capture the

causes of Italy's sluggish performance in primary education. Although the report largely confirmed what other inquiries had already revealed, it galvanized the process that led to centralized primary education – so much that the new bill, which would be approved soon thereafter, was often called the Corradini Law within political circles (Cives 1990: 77).

However, it was the Daneo-Credaro Bill, passed on June 4, 1911, that truly altered the educational system. The bill represented a delicate compromise between different ideological and political parties. The most controversial feature of the reform was the revised role of the provincial school board, which became a more intermediate body between the municipality and the state. The CSP was no longer presided over by the *prefetto*. Instead, the council was headed by a Director of Education (*provveditore*), who was also the chief of the *deputazione scolastica* (the executive branch of the *consiglio*). The provincial school board was partly elective, and it was in charge of managing the funds allocated for primary education, hiring teachers and supervising the municipalities. It allowed for a great deal of administrative decentralization that limited the power of the city councils. Yet, the system became financially far more centralized than it had ever been. Although the Daneo-Credaro Reform directly affected governance and fiscal capacity, the breakdown of WWI and the Interwar period greatly reduced the impact of the reform on Italy's school system (cf. De Fort 1996: 308 and Cappelli 2013).

III. Italy's electoral system and franchise, 1859 – 1911

Italy's first governments sought to exert tight control on local municipalities, as a consequence of social unrest during the process of unification, a phenomenon that lasted until well into the 1870s (Ciocca 2013). A centralized administrative system was introduced by Bettino Ricasoli in 1861.[85] Each province was ruled by a *prefetto*, who supervised an elective provincial committee; yet, the municipalities retained a good deal of autonomy. Although the mayor was appointed directly by the king, the city council was a fully elective local body.[86] Successive administrative legislation made local autonomy somewhat stronger: the reforms passed by Crispi's government in 1889 granted the possibility of electing the mayor to municipalities with more than 10,000 inhabitants. In 1896, the De Rudini-led government gave the same right to every Italian municipality. The city council was in charge of providing basic public goods such as primary education, infrastructure,

[85] Royal Decree n. 250, 9 October 1861.
[86] Law on the Administrative Unification of the Kingdom of Italy (Law n. 2,248 – 20 March 1865).

local police and healthcare. Thus, shedding light on the nature and functioning of local institutions and governance will help us to identify the motive force behind the country's persistent regional disparities in schooling. Specifically, the increasing autonomy of the municipalities during the late nineteenth century calls for a better understanding of the way that ruling elites influenced local economic and human development, as well as investment in public goods.[87]

The country's electoral law established that only male citizens older than 21 years could take part in municipal elections. Two major criteria were set forth in order to limit suffrage. First, a minimum amount of direct taxes had to be paid in order to gain voting rights. This amount varied across municipalities, because it was directly connected to their population (Table 1)[88] – a source of purely exogenous variation that will be used to limit reverse-causality bias in the econometric analysis. Second, the electoral system provided that literacy was a necessary (yet not sufficient) condition. As a result, high school teachers, professors, academics, government employees and similar groups were automatically granted the right to vote because of their professional status.

Size of the municipality	**Local direct tax minimum (any kind, in Lire)**
Less than 3,000	5
3,000 – 10,000	10
10,000 – 20,000	15
20,000 – 60,000	20
More than 60,000	25

Table 1 – Municipal population and access to the electoral rolls.

Source: *Statistiche Elettorali*, 1865 – 66.

Notes: Table 1 shows the amount of direct taxes (of any kind) that people had to pay in order to access the electoral rolls, 1861 – 1889.

[87] The new role that the municipality played in local socio-economic development was enhanced by the rise of municipal companies (*aziende municipalizzate*) introduced in 1903. Through these, the city council came to play an even more active role in the provision of public goods and services in the Kingdom of Italy, as they were granted the possibility to established local companies for the management of public resources and services.

[88] The electoral law was approved together with other norms on the administrative system, public security, the health system and public infrastructures (Law 20 March 1865). The electoral law defined rules for national and local elections. This paper focuses on the latter.

As Figures 3 - 6 clearly show, the north and south of the country experienced different socioeconomic conditions, which certainly influenced local enfranchisement under Italy's electoral system: the extent of landownership, the diffusion of economic well-being and (even more important) average municipal population and adult literacy. As a consequence, the country's universal electoral norms caused large regional inequalities in local franchise. The electoral system was intrinsically biased and limited suffrage in the southern provinces, mainly as a result of poor literacy and high tax minima connected to voting rights (Figure 7).

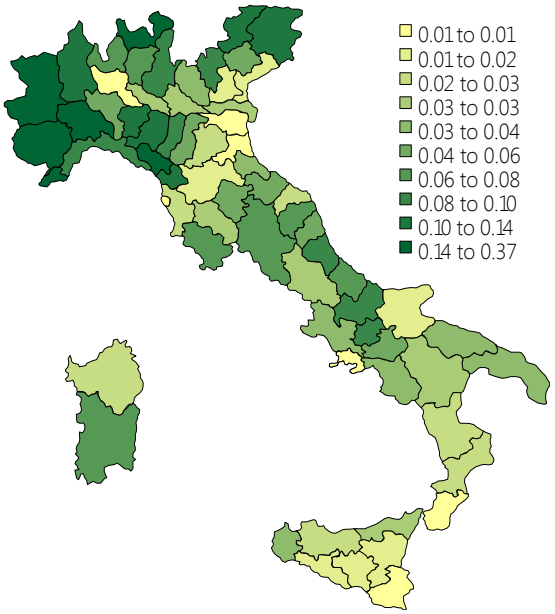

Figure 3 – Ratio between landowners and population, c. 1870.

Source: population census.

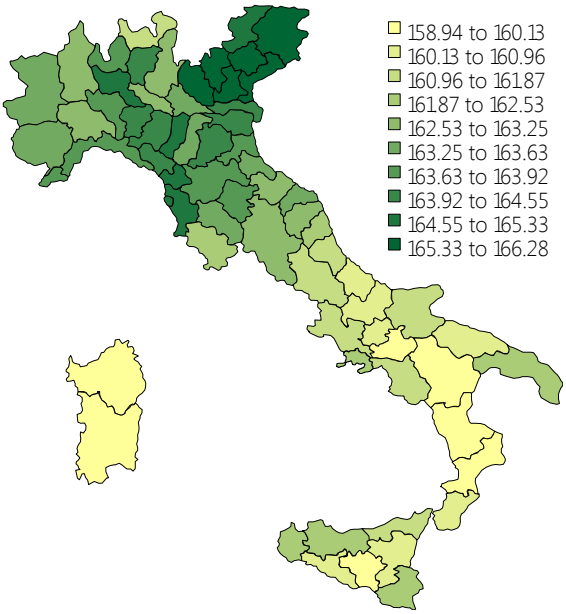

Figure 4 – Average height of males (cm) in 1871.

Source: A'Hearn and Vecchi (2011). Notes: the average height is a proxy for the well-being of people.

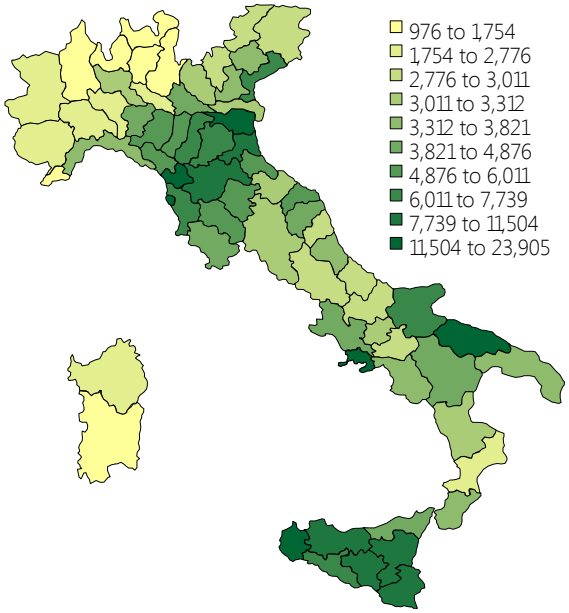

Figure 5 – Average number of residents per municipality, 1871.

Source: *Censimenti*, various years.

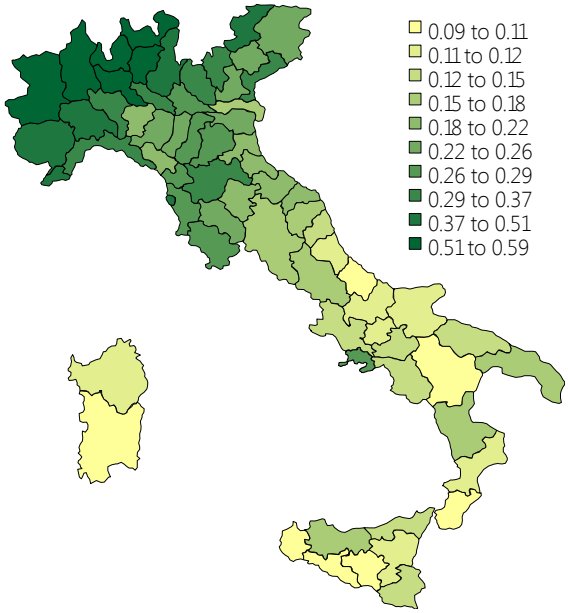

Figure 6 – Adult Literacy Rates (13+) in 1861.

Source: *Censimenti*, 1861. Notes: the data for the provinces of Veneto (which became part of the Kingdom in 1866) were extrapolated by relying on the census years 1871 and 1881.

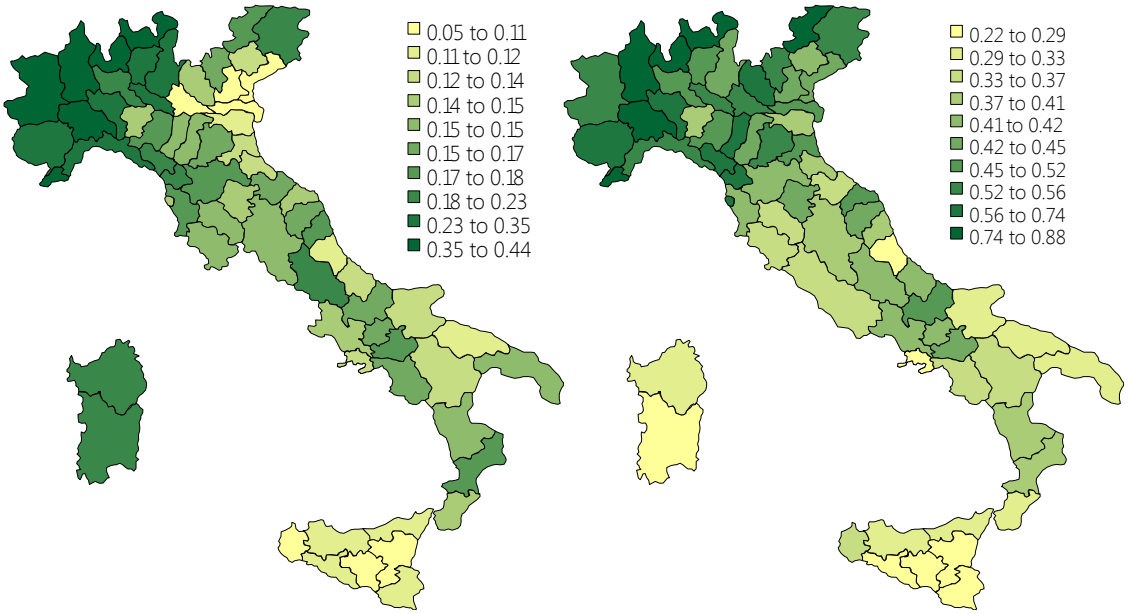

Figure 7 – Ratio between electors and adult male population (21+).

Source: own elaboration from *Statistiche elettorali*, 1865 – 66, 1883 and 1905.

The electoral law adopted in 1889[89] introduced only minor changes. Literacy remained a prerequisite, but the criteria based on taxes were modified: any resident paying *any amount* of direct taxes could formally gain voting rights. This might have strengthened the political voice of the southern regions. However, large socioeconomic differences across the country did not disappear. Instead, they grew stronger before the turn of the century (Felice 2011). As a result, large *de facto* regional disparities in voting franchise remained intact.

In such a system, the relationships among electoral franchise, local fiscal policy and fiscal capacity are key points. Municipal total fiscal capacity depended on different types of revenues. In order to accurately identify this relationship, this study defines fiscal capacity as including ordinary revenues only, that is, income from municipal taxes net of capital flows and extraordinary revenues (like state subsidies). Since municipal tax rates were set locally by the city councils, especially as far as surtaxes on land, property and consumption are concerned, a positive relationship between electoral franchise and fiscal capacity would be expected to exist. If most people in a society enjoy political- voice, increasing direct tax rates will be used to fund schooling for all. Instead, if political (and economic) power lies in the hands of fewer people, direct tax rates will not be raised and the ruling elites will opt for private schooling – seeking to avoid large direct costs that are likely to result in positive externalities for the masses. As it turns out, there exists a negative relationship between local electoral franchise and the diffusion of private schooling (Figure 8): the same negative relationship holds when the number of landowners as a share of total population is considered as a proxy for the concentration of economic power. Did city councils elected by a large majority of citizens levy higher local taxes on land and property than did those ruled by more restricted elites? When local surtaxes as a share of state taxes (concerning land and property) are taken into account, a clear regional pattern emerges (Figure 9).

[89] Royal Decree 10 February 1889, n. 5921.

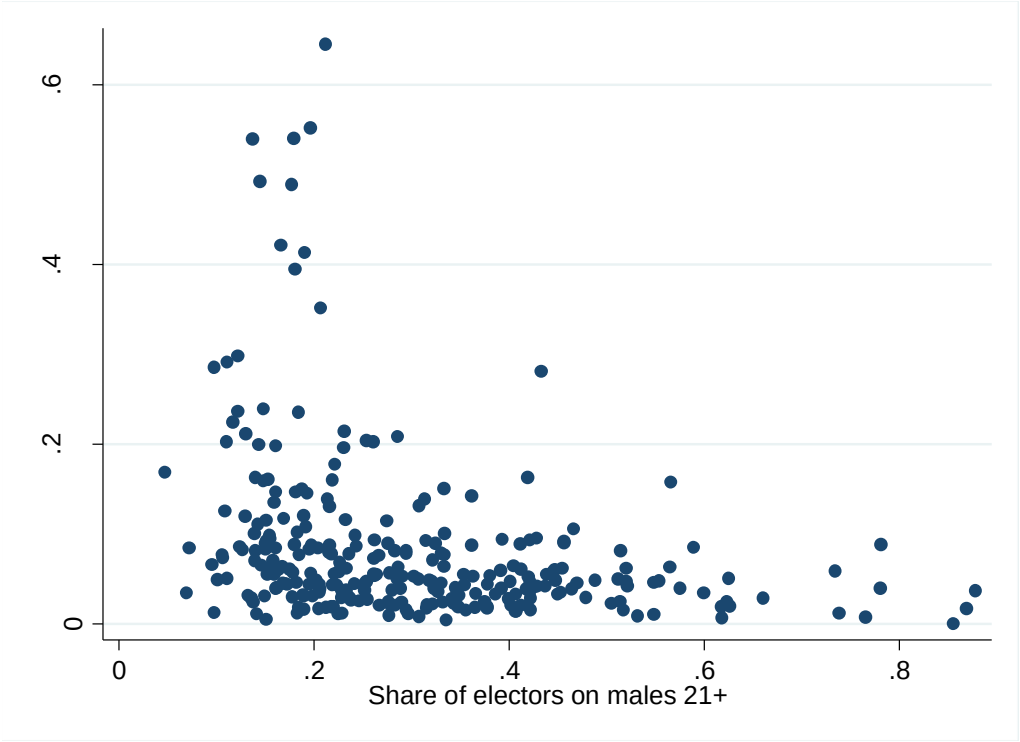

Figure 8 – Private enrolments and electoral franchise.

Sources: see text.

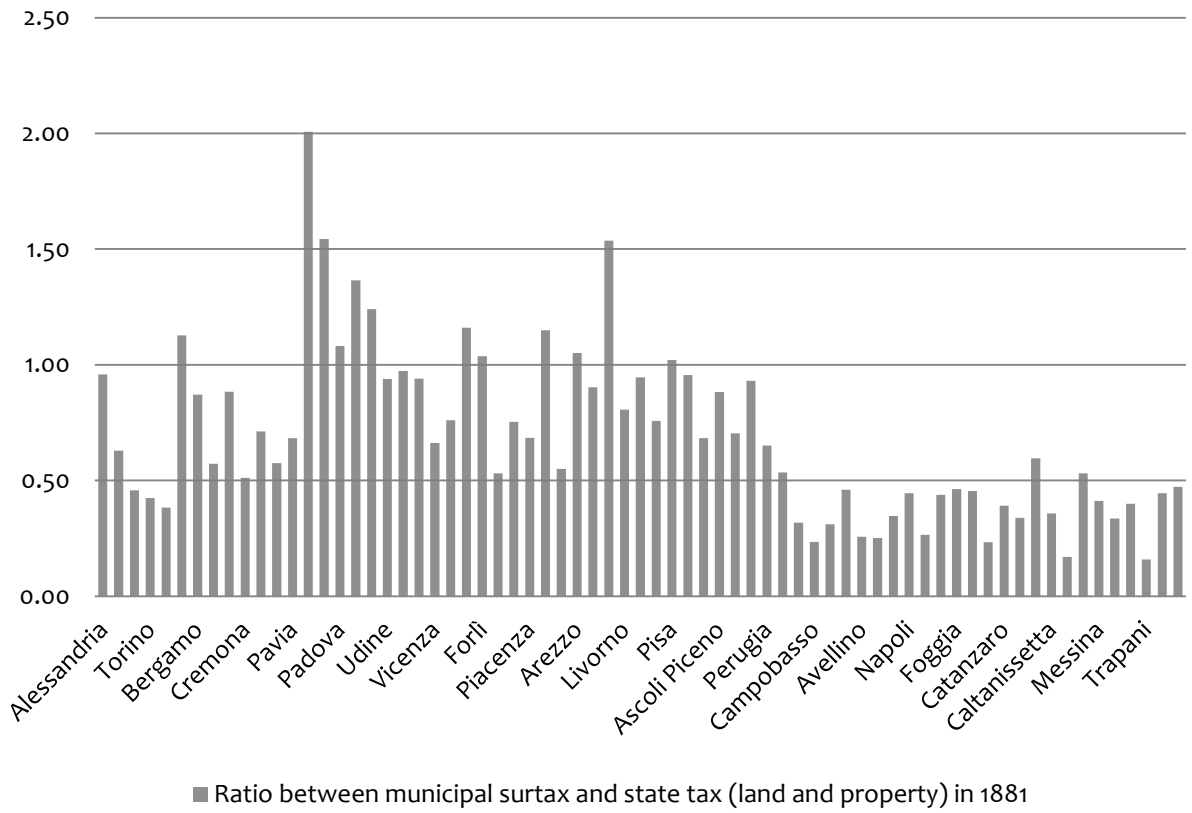

Figure 9 – The regional distribution of local surtax rates (as a share of state tax) in 1881.

Source: Bilanci Comunali, 1881.

Notes: the regions on the left are those from the north and centre of the country, characterized by a ratio larger than 0.50 and up to 1.00, 1.50 and 2.00. Southern regions, on the right, are all characterized by lower ratios.

Yet, surprisingly, local direct surtax rates are only weakly correlated with the extent of local electoral franchise – ρ ranges from 0.17 to 0.47 depending on the year chosen. Furthermore, fiscal capacity *was not* determined by the intensity of surtax rates as is commonly thought: the correlation appears to be very weak at the beginning of the period, and it goes down to zero in the years 1895 – 1907.

We see, then, that fiscal capacity was driven more by prosperity and economic fortune than by local decision-making on taxation and expenditures. For example, industrialization is more strongly, and more consistently over time, correlated with fiscal capacity than political voice (ρ = 0.50 in every benchmark year). Thus, the direction of causality may be reversed: it could be the case that more prosperous municipalities – and not the more democratic ones – were able to levy local direct taxes and foster further growth via investments in public goods. Instead, inequalities

and poverty might have trapped the South's economy in a vicious . This evidence suggests that fiscal capacity and electoral franchise should be treated as two distinct – though possibly complementary – mechanisms that determined the spread of universal education across Italy's provinces. The next section presents a framework that will serve to approach this issue.

IV. Methodology and sources

The paper focuses on a quantitative analysis by using different specifications of cross-section and panel-data econometric models, whose aim is to test the respective role of fiscal capacity and voting franchise in the rise of mass primary education, as well as to identify patterns of persistence and change over time. Two different measures of schooling – the number of pupils aged 6 to 10 per teacher in school and the expenditure on education as a share of total ordinary revenues – are regressed on fiscal capacity and political voice. The former is measured by the municipalities' ordinary revenues (including municipal surtaxes) aggregated by province and divided by provincial population (residents).[90] Political voice is constructed by using electoral statistics: the number of administrative electors[91] in each province is divided by the total number of adult males (older than 21 years). Several covariates are also taken into account. Local fiscal policy is measured by the ratio between municipal surtax revenues and state tax revenues (on land and property) – trying to capture the extent to which local elites were willing to promote the investment in public goods. Demand-side factors affecting the dependent variables are also included, such as an index of relative industrialization (Ciccarelli and Fenoaltea 2012), the percentage of children in the labour force (Cinnirella, Toniolo and Vecchi 2011) and the number of patents granted per million residents (Nuvolari and Vasta, mimeo). Social capital is also taken into account. Inquiries on charitable institutions are used in order to draw data on their effort in reducing pauperism, measured by the share of charitable expenditures on total funds available for charity (revenues net of other expenses). Lagged adult literacy rates (-10 years) are constructed in order to control for parents' (and society's) literacy, potentially driving both the supply and demand for education. Variables pertaining to geography include population density (residents) and the average

[90] It could be argued that, since surtax tithes were set by the city council, a more homogenous measure of prosperity should be used – for example state fiscal revenues in each province. However, by definition, state taxes were not connected to regional economic disparities – which is why fiscal pressure in southern regions was perceived as unsustainable after unification. Furthermore, what mattered for the capability to invest in public goods was the actual amount of funds available.

[91] People who could vote in municipal and provincial elections.

(population) size of municipalities in each province. Average heights are used as an index of well-being, which might have affected children's capability to attend classes. The potential trade-off between public and private schooling is taken into account by controlling for the number of children enrolled in private schools (as a share of those enrolled in public ones). The investment in infrastructure (as a potential alternative to education) is proxied by the share of budget spent on local infrastructural projects (roads, rivers, ports etc.). Finally, the child dependency ratio is included as a further control.

The first specification is based on cross-section regressions (Equation 1) for four different benchmark years (1870, 1885, 1895, 1907).

$$(1)\ Y_i = \beta_0 + \beta_1 elet_i + \beta_2 fiscal_i + \beta_3 X_i + \varepsilon_i$$

where $elet_i$ represents the proxy for political voice, $fiscal_i$ stands for a measure of fiscal capacity and X_i is the vector of control variables.

The second specification takes advantage of the panel structure of the data, by including provincial fixed effects (for 69 provinces) and a continuous time-trend (Equation 2).

$$(2)\ Y_{it} = \beta_0 + \beta_1 elet_{it} + \beta_2 fiscal_{it} + \beta_3 X_{it} + \beta_4 \delta_i + \beta_5 t + \varepsilon_{it}$$

Finally, a more complete specification of this model is run by interacting all the variables with the trend (equation 3). By doing so, it is possible to observe how the marginal effect of each factor changed throughout time (cf. Cinnirella and Hornung 2013 for a similar approach).

$$(3)\ Y_{it} = \beta_0 + \beta_1 elet_{it} + \beta_2 (elet_{it} * t) + \beta_3 fiscal_{it} + \beta_4 (fiscal_{it} * t) + \beta_5 X_{it} + \beta_6 (X_{it} * t) + \beta_7 \delta_i + \beta_8 t + \varepsilon_{it}$$

The results of these specifications are reported in Section V, while Section VI addresses issues with the estimates that are linked to potential endogeneity. Different primary (and secondary) sources were mined for pertinent data. Figures on private and public primary schooling are drawn from a variety of inquiries on primary education, commissioned by the Ministry of Education since 1859. The share of electors (proxy for political voice) is constructed by using administrative electoral statistics (number of local electors) and population censuses (adult males). Different sources were also used to proxy the municipalities' fiscal capacity. Municipal revenues (ordinary revenues and surtaxes), as well as other data concerning municipal expenditure on different public goods (e.g. infrastructures), are drawn from the municipalities' balance sheets. Data on provincial population

are collected from the censuses. The index of industrialization draws on the work of Carlo Ciccarelli and Stefano Fenoaltea. The index of child labour and figures on average heights are based on data available online.[92] It is worth noting that the data on child labour pertain to Italy's *regions* only, and are not disaggregated into provinces. Therefore, each regional value has been allocated to the provinces that were part of the same geographic area. Three different inquiries on independent charity institutions (*opere pie*) were used to construct the index of social capital. The censuses were also used to estimate adult literacy rates, the child-dependency ratio, population density and the municipality's average size for each province. Finally, data on patents per million residents are obtained from recent unpublished research.[93]

The four benchmark years (1870, 1885, 1895, and 1907) were chosen largely on the basis of the availability of inquiries on primary education and of municipalities' balance sheets. The references show a more comprehensive list of primary sources and their availability with respect to each benchmark year. When a variable was not available in the neighbour of a given year, it was estimated by means of linear interpolation. A summary of statistics is provided in Table 2.

[92] Data are available through Giovanni Vecchi's website: http://www.economia.uniroma2.it/vecchi/index.asp?area=7.

[93] The author wishes to thank Alessandro Nuvolari and Michelangelo Vasta for the data provided. Cf. Nuvolari and Vasta 2013.

Variable	Min.	Max.	Mean	St. Dev.
Children (6 – 10) per teacher	27.73	304.81	77.59	36.60
Exp. education % revenues	0.08	0.53	0.20	0.07
Electors % 21+ males	0.05	0.88	0.30	0.16
Fiscal capacity	3.79	44.17	12.06	5.75
Index of industrialization	0.45	2.25	0.91	0.34
Index of social capital	0.19	1.00	0.71	0.19
Land and property surtax (share of state tax)	0.10	2.94	0.78	0.46
Average height of army conscripts	158.94	167.90	163.62	2.01
Population density	21.68	1,106.13	132.40	122.34
Child labour (% of total children)	33.35	92.70	59.35	12.99
Lagged adult literacy rates (-10)	0.086	0.87	0.34	0.18
Average population of municipalities	976.06	24,230	5,658.27	4,102.40
Exp. for infrastructures % budget	0.038	0.51	0.18	0.086
Number of patents per million inhabitants	0.00	244.93	13.80	26.81
Enrolments in private schools % of public	0.00	0.65	0.09	0.10
Child dependency ratio	0.015	0.17	0.08	0.03

Table 2 – Summary statistics, 1870 – 1907.

Source: see text.

V. Results: determinants of schooling in Italy's provinces, c. 1870 – 1911

A short summary of the state of primary schooling as depicted by the *Documenti* of 1868 – 72 gives an idea of the large educational discrepancies characterizing the country's regions after its unification. The province of Chieti (still officially called of Abruzzo Citeriore from former pre-unification states, cf. Figure A1 in the Appendix) was not characterized by widespread education: the inquiry reports that at least 20 centres with more than 500 inhabitants had no schools at all. Enrolment rates were extremely low, sometimes as low as 20 percent for males and 10 percent for -females, with actual attendance even worse. Schooling in the age category of 9 – 10 was particularly inadequate, because of child labour and the influence of the clergy – the latter being very suspicious of secularized basic education. Teacher wages were poor, and normally paid with substantial delay. One in two male teachers and three-quarters of the female teachers had not earned a teaching certificate, proving they lacked even basic skills to run primary school classes. Similar problems are highlighted in the report on Aquila, a province in the same region of Abruzzi. Neither parents nor city councils "cooperated" to improve student attendance. In fact, the latter cheated on the system by assigning qualified teachers to low-wage classes, although they would

be entitled to earn a higher salary given their expertise and qualification, the population size of the municipality and its fiscal capacity. The material conditions of schools were decaying, often - described as "terrible". Moving to the province of Foggia (then called Capitanata) in the region of Puglia would not change the picture by a great extent. Teaching quality there was also poor, characterized by a widespread lack of teaching certificates and a very marked gender bias concerning both teachers and students. However, some efforts were made to improve education. A report from the municipality of Monte Sant'Angelo affirms that two well-prepared teachers from Lombardy were hired to contribute to local schools. However, they found themselves working in a sort of hostile environment. In other municipalities, the city councils continuously closed down primary schools on the ground of poor attendance (which the council itself did not enforce) and high running costs. Inspectors also pointed out an ineffective allocation of teachers and students. While the student-teacher ratio was about 70 to 1 in the first class of first-grade primary schools, successive classes were attended by about 15 students. This resulted in very ineffective learning, which hindered the progress towards basic literacy throughout the end of the first grade (two years) and during the second grade as well (two additional years). Very often, the city councils wished to preserve the status quo. A report on a teacher who could barely speak Italian, and who was kept in his position by the assessors, is quite eloquent. The situation was exacerbated by the rural-urban divide, with rural areas devoting much less attention to schooling and teaching.

These descriptions contrast very sharply with reports from the north of Italy. In the province of Alessandria (Piemonte, North-Western Italy), an inspector actually wondered if there was too much education – a musing which may reveal a sentiment towards mass education that characterised a large share of the public opinion. At the end of the day, the inspector stated, schools were being established to train future factory workers among males and wives among females, so why should the municipalities provide them with too-high ambitions? In Monza (province of Milan, Lombardia) there were very few schools that did not satisfy basic standards of construction, maintenance and hygiene, but child labour still kept pupils away from education to some extent, especially in rural municipalities. The same story held in Lodi and Sondrio, where the diffusion of schooling was deemed as "satisfactory". However, although the schools in the province of Milan were often portrayed as examples of success, problems were reported there too. According to the inspector, the provincial schooling board did not monitor schooling closely enough to improve specific problems, like rural municipalities lagging behind and recruitment by

some city councils, who hired less-qualified teachers so as to be able to pay lower salaries. Similar pictures are provided by later inquiries such as the Torraca inquiry of 1897 and the Corradini inquiry of 1910, which represented an important step towards the adoption of a more centralized education system.

The picture drawn from local reports is, by and large, confirmed by statistical data on the state of education collected for different benchmark years across Italy's provinces. Figures 10 and 11 provide a picture referring to the years 1868 – 72 and are drawn from the *Documenti* on Italy's primary-level education discussed above.

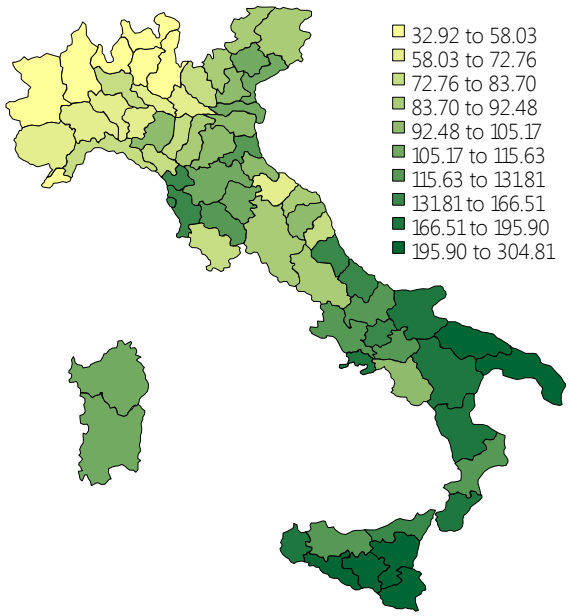

Figure 10 – Children aged 6 to 10 per teacher in 1870

Source: *Documenti*.

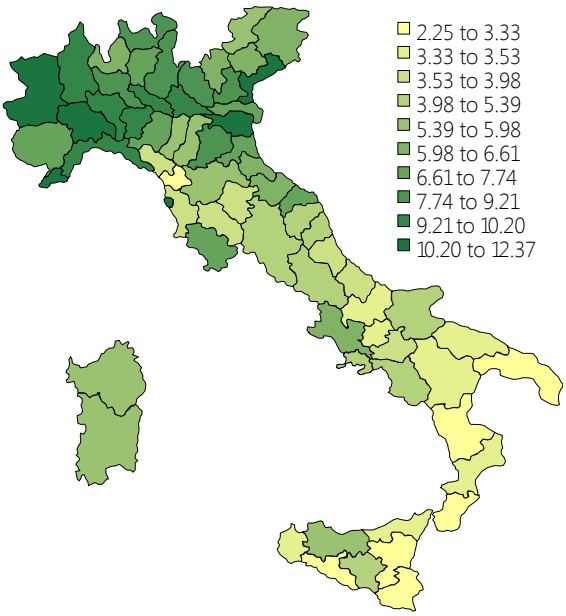

Figure 11 – Expenditure on education per child of school age.

Sources*: Bilanci Comunali* (1870) and *Censimenti* (1871).

In order to grasp to what extent fiscal capacity, political choices and fiscal policy determined both these differences in schooling and their persistence over time, different econometric specifications are used. OLS cross-section regressions are performed first. Although the model controls for local fiscal policy and electoral franchise, fiscal capacity remains the most important determinant of the quality of education (Table 3): a change of 1 Lira is associated with a reduction in the child-teacher ratio of between 1 and 5,depending on the year chosen (the relative importance of the magnitude is also attested by the standardized beta coefficients, reported in parentheses): this is a large

effect, considering that fiscal capacity in 1870 ranged from 3 to 25 Lire across the country's provinces. Instead, electoral franchise is statistically significant only in 1870, when its marginal effect on education was similar to that of fiscal capacity. In later years, demand-side factors might have affected the quality of education far more than political voice. The sign of the relationship between industrial growth and schooling can be positive or negative, depending on the sectors that were on the rise during the country's industrialization. However, the data suggest that its dominant effect was initially negative, possibly a result of the fact that the country's first wave of economic growth fostered child labour through the rise of textiles. These patterns may explain why supply-side mechanisms became weaker determinants of the quality of education by the turn of the century.

	(1)	(2)	(3)	(4)
Children (6 – 10) per teacher [cross section]	1870	1885	1895	1907
Share of electors on males 21+	-158.737*	-40.827	2.390	-9.344
	(-0.263)	(-0.190)	(0.020)	(-0.086)
Fiscal capacity	-4.725**	-1.981***	-1.562***	-0.938***
	(-0.309)	(-0.400)	(-0.496)	(-0.386)
Share of surtax on state tax (property)	11.251	16.679***	2.485	9.293**
	(0.069)	(0.308)	(0.064)	(0.305)
Constant	40.205	-427.278*	-224.532	-187.238
	(.)	(.)	(.)	(.)
Control variables	YES	YES	YES	YES
Macro-regional dummies (South, NEC)	YES	YES	YES	YES
Observations	68	69	69	69
Adjusted R-squared	0.763	0.781	0.763	0.644

Robust normalized beta coefficients in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3 – OLS cross-section regressions.

Notes: Y = children per teacher. Control variables include: index of industrialization, lagged adult literacy rates (-10), index of social capital, population density, average height of army conscripts, child labour (% of total children), average population of municipalities, exp. for infrastructures % of budget, enrolments in private schools % public, child dependency ratio, number of patents granted per million inhabitants.

When the share of revenues invested in education is used as a dependent variable, no consistent relationship can be identified with enfranchisement: the sign of the coefficient changes over time and its value is never significantly different from zero. Instead, fiscal capacity is always negative: 1 Lira more is always associated with a decrease in the relative effort to fund education, although

this effect is statistically significant only in 1870 and 1895. This result places into question A'Hearn et al.'s hypothesis that the northern regions' choice to invest more in mass education resulted in greater revenues through political mechanisms which, ultimately, influenced fiscal policy (Table 4).

	(1)	(2)	(3)	(4)
Exp. education % revenues [cross section]	1870	1885	1895	1907
Share of electors on males 21+	-0.265	0.098	-0.016	0.021
	(-0.243)	(0.241)	(-0.052)	(0.048)
Fiscal capacity	-0.012***	-0.002	-0.004***	-0.001
	(-0.419)	(-0.259)	(-0.454)	(-0.117)
Share of surtax on state tax (property)	-0.016	-0.029	-0.023**	0.034
	(-0.054)	(-0.283)	(-0.229)	(0.278)
Constant	1.503	1.837***	0.494	1.899
	(.)	(.)	(.)	(.)
Control variables	YES	YES	YES	YES
Macro-regional dummies (South, NEC)	YES	YES	YES	YES
Observations	68	69	69	69
Adjusted R-squared	0.610	0.516	0.675	0.351

Robust normalized beta coefficients in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4 – OLS cross-section regressions.
Notes: Y = Exp. education % revenues.

Columns (1) and (2) in Table 5 show the results from a fixed-effect (FE) regression with a time trend. The sign of fiscal capacity remains negative for both dependent variables, while that of franchise and fiscal policy differs from the cross-section estimates. It is worth noting that the coefficients may change substantially over time in the span of almost 40 years, as the cross-section models have shown. Since a simple FE regression cannot capture changing marginal effects, columns (3) and (4) report the results obtained by interacting every independent variable with the time trend, in order to allow diachronic changes in the magnitude and significance of each coefficient. As Table 5 demonstrates, the significance of the coefficients rises appreciably when such a specification is used, and this is accompanied by an increase in the adjusted R squared by about 15 percent. In order to make sense of the magnitude of the coefficients estimated via this specification, a simple calculation may be made: $\alpha_{fiscal_{year_x}} = \beta_{variable} + (\beta_{variable * trend} * year_x)$ where α is the actual coefficient in $year_x$. Instead, $\beta_{variable}$ and $\beta_{variable * trend}$ are obtained from Table 5 below.

Panel data FE (1) (2) and FE with interactions (3) (4)	(1) FE Y = Children per teacher	(2) FE Y = Exp. education % revenues	(3) FE + Int. Y = Children per teacher	(4) FE + Int. Y= Exp. education % revenues
Share of electors on males 21+	52.233	0.215**	-5,098.307***	-17.508
	(0.113)	(0.012)	(0.003)	(0.199)
(Variable x Trend)			2.669***	0.009
			(0.003)	(0.195)
Fiscal capacity	-0.391	-0.003	-158.147***	-0.792***
	(0.768)	(0.374)	(0.006)	(0.002)
(Variable x Trend)			0.083***	0.000***
			(0.006)	(0.002)
Share of surtax on state tax (property)	15.290***	0.044	-1,436.965**	2.128
	(0.009)	(0.134)	(0.015)	(0.231)
(Variable x Trend)			0.751**	-0.001
			(0.015)	(0.237)
Constant	3,419.897***	5.468*	54,219.898***	39.566
	(0.001)	(0.089)	(0.006)	(0.796)
Control variables	YES	YES	YES	YES
Fixed effects	YES	YES	YES	YES
Time trend	YES	YES	YES	YES
Interactions with trend	NO	NO	YES	YES
Observations	275	275	275	275
Number of provinces	69	69	69	69
Adjusted R-squared	0.684	0.187	0.830	0.338

Robust p-values in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5 – OLS panel data regressions (FE) and FE + interactions with the time trend.

The tables below show the actual coefficients obtained from the model reported in Table 5, when the dependent variable is children per teacher (Table 6) and expenditure on education % of revenues (Table 7) respectively, in each of the benchmark years.

Actual coefficients [Children per teacher]	1870	1885	1895	1907
Share of electors on males 21+ ***	-106.6898	-66.6501	-39.9570	-7.9252
Fiscal capacity ***	-3.6395	-2.4001	-1.5739	-0.5824
Share of surtax on state tax (property) **	-32.8863	-21.6237	-14.1152	-5.1051

Table 6 – Actual coefficients in each benchmark year, obtained from the model outlined in Table 5.
Notes: the model implements FE + interactions with the time-trend (Y = children per teacher). Stat. significant is shown in the conventional way (* = 10%, ** = 5%, *** = 1.%).

Actual coefficients [Exp. education % revenues]	1870	1885	1895	1907
Share of electors on males 21+	-0.1377	0.0017	0.0946	0.2060
Fiscal capacity ***	-0.0211	-0.0149	-0.0108	-0.0059
Share of surtax on state tax (property)	0.0526	0.0359	0.0248	0.0115

Table 7 – Actual coefficients in each benchmark year, obtained from the model outlined in Table 5.
Notes: the model implements FE + interactions with the time-trend (Y = Education expenditure % of revenues). Stat. significant is shown in the conventional way (* = 10%, ** = 5%, *** = 1.%).

The effect on education of each of the supply-side determinants declines over time, when their coefficients are estimated in a way that captures this point. The marginal effect of political voice on quality of education declines in a particularly remarkable way. An increase of 50 percent in the share of enfranchised adult males corresponds to a jump from South to North; yet, this would just reduce the child-teacher ratio by 4 units in 1907 – a small fraction of the variance observed in -education in the same year. In 1870, the same increase in the number of electors would result in a

drop in the number of children per teacher by 53, on average. This thirteen-fold decline can be only partially explained by convergence, since the estimates control for a time trend. The marginal impact of fiscal capacity and fiscal policy on education declines less quickly (six-fold between 1870 and 1907). When expenditure on education % revenues is considered, a positive effect of both electoral franchise and fiscal policy can be discerned, in line with expectations. However, fiscal capacity remains negative, still suggesting that disadvantaged regions made an effort to fund education despite lower demand and less local electoral franchise.

VI. Robustness checks: dealing with potential endogeneity

Reverse causality is always a possibility. Since electoral franchise was tightly connected to literacy, the link between education and local enfranchisement may be incorrectly identified. Furthermore, industrialization and child labour may be influenced by the location of human capital and schooling. Therefore, they should be instrumented as well in order to control for endogeneity.

Electoral franchise can be instrumented in a panel-data model similar to that shown in Table 5, where the marginal effect of electoral franchise, fiscal policy and fiscal capacity *only* is allowed to change over time by including interaction terms between the regressors and the trend. In fact, interacting every variable with the trend largely reduced the quality of the estimates, as measured by the diagnostic tests. However, it is important to stress that the results do not change if all the regressors are interacted with the trend, as was done in Table 5.

A valid instrument can be drawn from Italy's electoral law, as described in Section III (cf. Table 1): male citizens could gain voting rights if they paid a minimum amount of direct taxes in their municipality of residence, which in turn was linked to municipal population. Since the different tax thresholds were set by administrative law at the national level, they constitute an exogenous source of variation that can be exploited in order to induce variation in the endogenous regressor (cf. Angrist and Krueger 2001, Acemoglu et al. 2001). However, the country's electoral law was amended in 1889: since then, anyone who paid any amount of direct taxes could join the electoral rolls. Therefore, the instrumental variable approach can hardly be used in cross-section 2SLS regressions pertaining to different benchmark years; yet, the instrument still proves to be strongly correlated with electoral franchise in a panel-data model (cf. first-stage regression in Table A1 in the Appendix).

Table 8 below shows the result when 2SLS regression is performed, the dependent variable being the number of children per teacher. The actual magnitude of the coefficients can be calculated by following the procedure described by Equation 4 in Section IV. Although the marginal effect of electoral franchise is negative in 1870 (as expected) it declines to zero by 1885 and oscillates around that value in 1895 and 1907 as well. According to 2SLS estimates, an increase of 50 per-cent local franchise (roughly equal to moving from the South to the North) would have a slightly positive, but very negligible impact on the number of children per teacher (+0.5): this casts further doubt on the explanatory power of electoral franchise when education is concerned. The diagnostic tests for the first-stage regression show that the model is identified, that is, that the instrument contributes to identify the effect of the endogenous regressor (H_0 that the model is under-identified is rejected). The hypothesis that the instruments are weakly correlated with the endogenous regressor is strongly rejected, based on Stock and Yogo's critical values. Finally, an over-identification test cannot be performed because the number of instrument equals the number of endogenous variables. All in all, the regression and the tests performed reinforce the results previously presented.

2SLS regression Y = children per teacher Endogenous X = electoral franchise	(1) Children per teacher
Share of electors on males 21+	-178.573***
	(0.000)
(Variable x Trend)	0.095***
	(0.000)
Fiscal capacity	-171.515***
	(0.008)
(Variable x Trend)	0.088***
	(0.009)
Share of surtax on state tax (property)	513.705
	(0.539)
(Variable x Trend)	-0.270
	(0.540)
Control variables	YES
Fixed effects	YES
Time trend	YES
Interactions with trend	El. Franchise, Fiscal Policy and Fiscal Capacity only
Observations	275
Number of provinces	69
R-squared	0.661

Robust p-values in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8 – 2SLS panel-data model.

Notes: Y = children per teacher. Endogenous regressors = electoral franchise and its interaction term with the time-trend. Instrumental variables = average minimum tax threshold to gain voting rights and its interaction term with the time trend.

A simpler way to limit the source of endogeneity is to substitute electoral franchise with an alternative independent variable: this should capture a similar effect and, possibly, be less affected by endogeneity. The number of landowners as a share of total population was chosen to proxy the concentration of economic power. As Figure 12 shows, there is a clear-cut correlation between local franchise and landownership. One of the channels connecting the two might have been that landowners gained voting rights because they were able to pay more direct taxes on property, including land, than other citizens.

Figure 12 – The relationship between local franchise and landownership, 1870 – 1907.

Sources: see text for figures on the electorate; figures on landowners in 1881 and 1901 have been kindly provided by Brian A'Hearn, while the 1870 data have been collected by the author from the relative census.

At the same time, landownership should not be influenced directly by education. Although literacy may affect the number of landowners, the present paper takes into account measures of education only; hence, this source of reverse causality should affect the estimates to a lesser extent. When the diffusion of landownership is used as a substitute for local franchise, the results do not change (Table 9). The same results hold when panel data regressions are performed, although they are not reported for the sake of brevity. Both the conclusions on the explanatory power of fiscal capacity, as well as its magnitude, remain the same. Landownership is statistically significant only in 1885 and 1895, but its magnitude is always much smaller than that of fiscal capacity throughout the period, as shown by beta coefficients in parentheses.

Children (6 – 10) per teacher [cross-section]	(1) 1870	(2) 1885	(3) 1895	(4) 1907
Share of landowners on total population[94]	-252.518	-165.286**	-100.118*	-28.388
	(-0.084)	(-0.149)	(-0.155)	(-0.051)
Fiscal capacity	-4.099**	-1.844***	-1.494***	-0.944***
	(-0.268)	(-0.372)	(-0.474)	(-0.389)
Share of surtax on state tax (property)	16.757	17.132***	4.748*	9.534**
	(0.103)	(0.317)	(0.122)	(0.313)
Constant	-349.543	-434.028*	-206.696	-144.742
	(.)	(.)	(.)	(.)
Control variables	YES	YES	YES	YES
Macro-regional dummies (South, NEC)	YES	YES	YES	YES
Observations	68	69	69	69
Adjusted R-squared	0.751	0.787	0.774	0.643

Robust normalized beta coefficients in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9 – Cross-section regression with landownership as an alternative proxy for political voice across Italy's provinces.

It is more difficult to address a reverse-causality issue for both industrialization and child labour, especially in that the two are interwoven. Geographic features are expected to be correlated with the diffusion of early industry and, in turn, child labour, while the exclusion restriction should hold insofar as geography has no direct effect on education. Unfortunately, regressing both industrialization and child labour on geographic variables leads to weak results.[95] However, early-stage industry and child labour were, at least to some extent, collinear in nineteenth century Italy.[96] Given the fact that the demand for skills can be proxied by the number of patents per million inhabitants, it was chosen to exclude industrialization and concentrate on child labour, which is likely to matter more for the development of formal primary-level education. In fact, industrialization might have influenced the development of skilled labour through alternative channels (cf. Roses 1998). In order to instrument the incidence of child labour, this study relies on modern data on average temperatures (degrees Celsius) and rainfall (mm) across Italy's provinces

[94] Since the variable is computed as a share – not as a percentage – the coefficient must be divided by 100 in order to interpret its magnitude.

[95] The model is under-identified and instruments turn out to be weak when industrialization and child labour are estimated together.

[96] The correlation between industrialization and child labour is about -0.35 and constant throughout the period analysed (it appears to be weaker only in 1907).

in the years 2000 – 2009, which are drawn from ISTAT (2010)[97] (cf. Dorman 2008 for a review on the literature on child labour in the context of ILO's International Programme on the Elimination of Child Labour). Temperatures and rainfall may influence child labour through a number of possible channels: (1) the extent of small landholding, (2) the diffusion of intensive vis-à-vis extensive farming and (3) the birth of proto-industry and modern factories connected to the availability of water streams, especially in the case of textiles (cf. Cafagna 1989, Fenoaltea 2006).[98] Given these potential mechanisms, it is difficult to speculate on the sign of the coefficient connecting environmental features and child labour – we expect to find a significant and robust relationship, while its sign depends on Italy's historical specificity with regard to the link between geography, society and economic development.

The first-stage regression (Table A2 in the Appendix) demonstrates that there is a robust and statistically significant relationship between child labour and geography. Furthermore, there is no reason to expect the dependent variable in the second stage, the child-teacher ratio, to be directly influenced by average temperatures and rainfall.[99] Table 10 below shows the results. With the exception of 1885, child labour is not statistically significant (consistently with previous estimates). If anything, it had a negative impact on the number of children per teacher. This effect may be due to developing industry that increased the incidence of child labour and, in turn, had an impact on the number of teachers available (given the fact that the numerator of the index is not represented by the number of pupils enrolled but rather by the number of children aged 6 to 10). The effect of electoral franchise is not significant, while the coefficient of fiscal capacity turns out to be larger than in previous estimates.

[97] The provincial distribution of these variables is shown in Figures A1 and A2 in the Appendix.

[98] The case of silk production is different. In fact, the demand for labour was met largely by employing women. Additionally, silk production required a minimum amount of skill, hence it remains unclear whether child labour played an important role (Federico 1997).

[99] Indeed, the diagnostic tests for the first-stage regression show that the model is identified, that is, that the instrument contributes to identify the effect of the endogenous regressor (H_0 that the model is under-identified is rejected for every benchmark year). The instrument appears to be weakly correlated with the endogenous regressor only in the first two benchmark years, while the value of the statistics is greater than Stock and Yogo's critical values for 1895 and 1907. The hypothesis that the instruments are truly exogenous (over-identification) is confirmed only for 1907 and at the 5 percent level. However, the time-invariant nature of the instruments suggests that they can be treated as exogenous.

2SLS regressions (cross-section) Y= children per teacher Endogenous X = child labour	(1) 1870	(2) 1885	(3) 1895	(4) 1907
Child labour (% of total children)	-2.085	-0.692*	-0.251	-0.427
	(0.195)	(0.081)	(0.400)	(0.231)
Share of electors on males 21+	-1.253	-0.427	0.059	-0.057
	(0.138)	(0.151)	(0.641)	(0.709)
Fiscal capacity	-4.408***	-2.206***	-1.716***	-1.001***
	(0.004)	(0.000)	(0.000)	(0.005)
Share of surtax on state tax (property)	9.282	14.287***	2.380	7.036**
	(0.501)	(0.002)	(0.295)	(0.025)
Control variables	YES	YES	YES	YES
Macro-regional dummies (NEC, South)	YES	YES	YES	YES
Observations	68	69	69	69
Adjusted R-squared	0.718	0.738	0.760	0.612

Robust p-values in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 10 – 2SLS cross-section regressions.

Notes: Y = children per teacher. Endogenous regressor = child labour. Instrumental variables = average temperature in Celsius degrees (2000 – 2009) and average rainfall in mm (2000 – 2009).

VII. Conclusions

This paper demonstrates the negative impact of the decentralization of education in Italy. It slowed regional convergence in primary education, which limited the country's pace of human capital accumulation. When a regional perspective is adopted, it is hard to claim that decentralized schooling promoted the rise of mass education and the development of human capital, given the extent of regional disparities that certainly influenced Italy's comparative and future performance. This contrasts sharply with results concerning other national case studies, which have taken into account the comparative performance of national education systems – like Lindert's study on nineteenth-century Germany and Goldin's case for America's leadership in the twentieth century. These results indicate the importance of further efforts to explore the benefits and costs of centralized educational systems, especially from a long-term perspective.

Among the potential mechanisms outlined by economic theory and other historical case studies, only fiscal capacity had a significant and stable effect on schooling across nineteenth-century Italian provinces. According to the econometric evidence, local electoral franchise had no direct

impact on the development of primary-level education. Potential indirect effects were also insignificant. In fact, the link connecting franchise, fiscal policy and fiscal capacity was weak at best. Instead, fiscal capacity remained strongly connected to regional inequalities in primary education throughout the period explored, that is, 1870 – 1907. A one-unit increase in fiscal capacity (per capita Lire) caused a 2 - 7 drop in the number of children of school age per teacher. Similarly, this research proves that the southern regions actually did spend a large share of their budget on education, because fiscal capacity turns out to be negatively correlated with educational expenditure as a share of municipal revenues throughout the whole period.

I conclude that socioeconomic conditions – not local political mechanisms – determined fiscal capacity, which in turn influenced the rate of investment in schooling across Italy's provinces in the late-nineteenth century. Based on the evidence, the paper rejects local political mechanisms as an explanation for the rise of mass public education in late-nineteenth century Italy. This model, first proposed by Engerman and Sokoloff, has been recently applied to the case of Italy's regional development by A'Hearn, Auria and Vecchi and by Felice. Its explanatory power should be reassessed by future research, which may centre on local fiscal systems and their role in the provision of public goods before and after Italy's unification in 1861.

Decentralized education systems may provide a timely and adequate response to local demand. However, limited demand for education, poverty and poor institutions may lock people in a human capital trap, with detrimental consequences for future economic development. The cost-benefit analysis of decentralized versus centralized education should be based on a long-term perspective. Basic education and human capital are central factors of economic growth, and fundamental dimensions of human development. Leaving the diffusion of schooling to the laws of supply and demand may be a sensible choice in the short run; yet, this research shows that – in the presence of large regional inequalities – the bet on decentralised schooling may bring about gloomy prospects for future generations.

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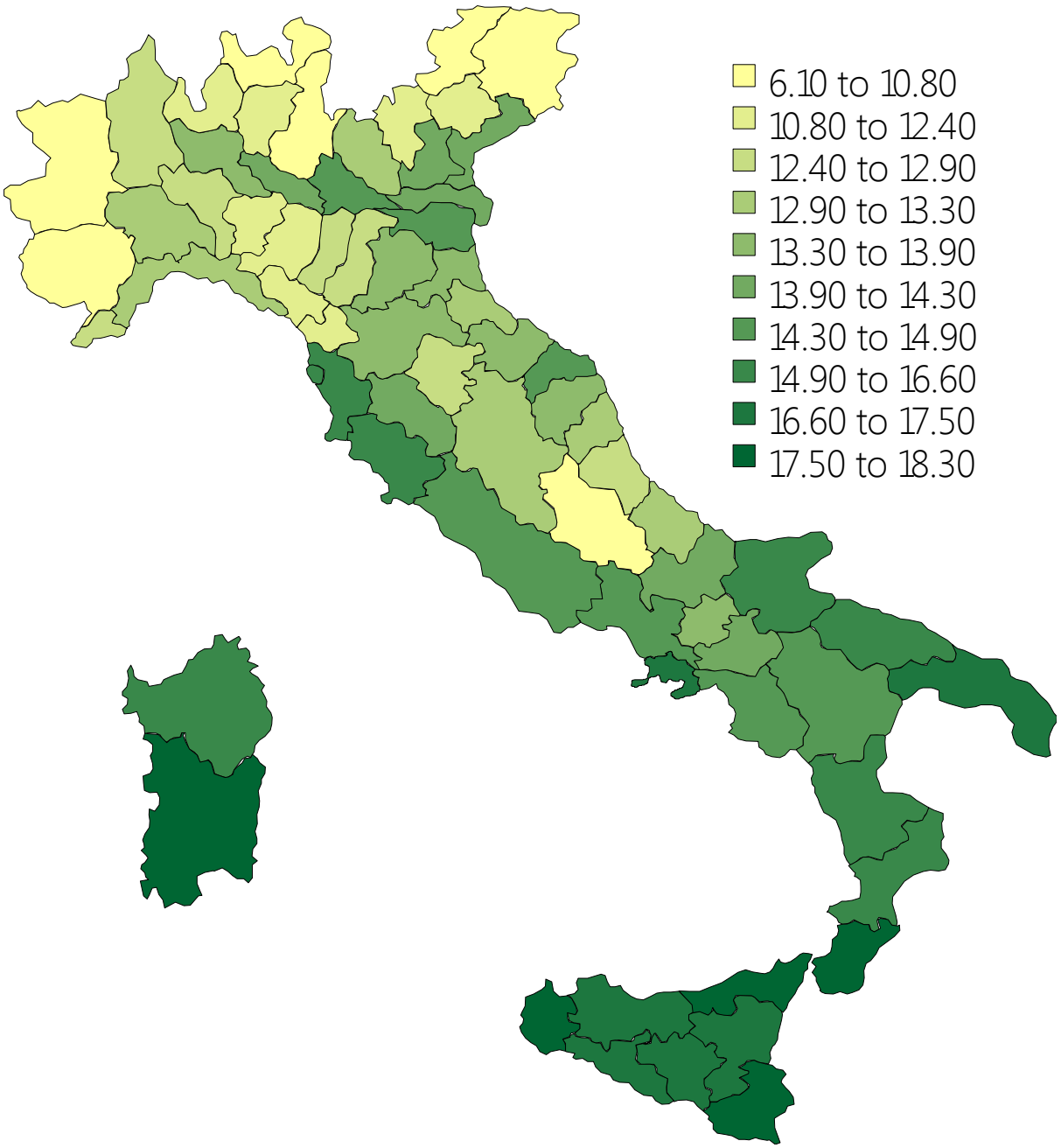

Figure A1 – The distribution of average temperatures in Italy provinces (degrees Celsius), 2000 – 2009.

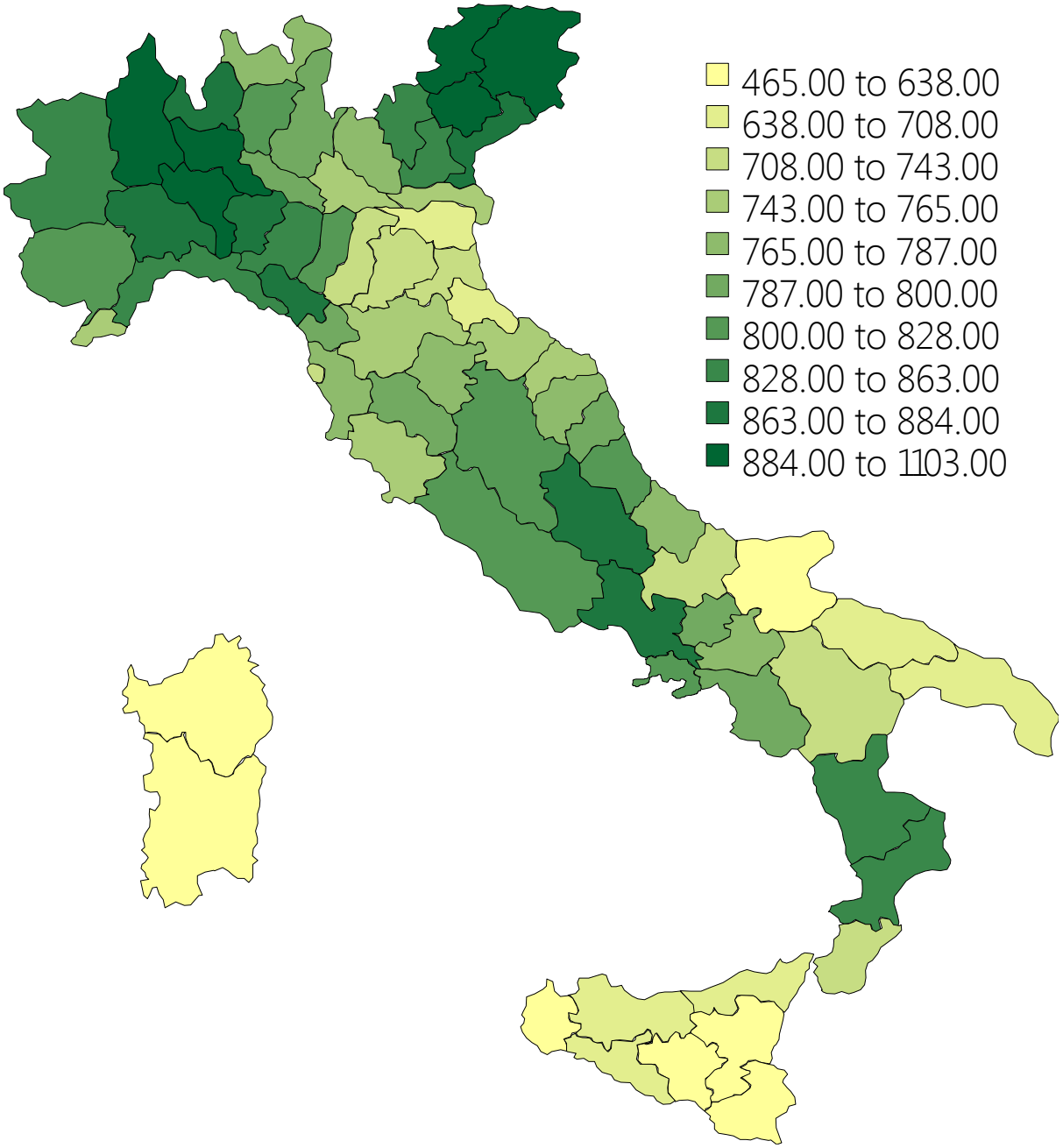

Figure A2 – The distribution of average rainfall in Italy's provinces (mm), 2000 – 2009.

2SLS first-stage regression [panel data] Endogenous X = electoral franchise and interaction with trend IV = minimum tax threshold and interaction with trend	(1) Electoral franchise	(2) Electoral franchise x trend
Minimum tax threshold	78.173***	152,198.523***
	(0.000)	(0.000)
Minimum tax threshold x trend	-0.042***	-81.024***
	(0.000)	(0.000)
Fiscal capacity	14.789	28,700.911
	(0.185)	(0.178)
(Variable x trend)	-0.008	-14.774
	(0.190)	(0.183)
Share of surtax on state tax (property)	-519.864***	-1000063.947***
	(0.002)	(0.002)
(Variable x trend)	0.274***	526.786***
	(0.002)	(0.002)
Index of industrialization	2.031	4,283.226
	(0.743)	(0.718)
Lagged adult literacy rates (-10)	10.319	20,705.346
	(0.431)	(0.407)
Index of social capital	8.027*	15,330.830*
	(0.098)	(0.098)
Population density	0.004	7.642
	(0.804)	(0.818)
Average height of army conscripts	1.479*	2,860.069*
	(0.083)	(0.080)
Child labour (% of total children)	0.232***	440.337***
	(0.005)	(0.005)
Average population of municipalities	-0.001***	-2.483***
	(0.002)	(0.003)
Exp. for infrastructures % budget	1.190	2,286.444
	(0.823)	(0.821)
Enrolments in private schools % public	5.555	10,271.840
	(0.247)	(0.264)
Child dependency ratio	97.816***	181,651.422***
	(0.005)	(0.006)
Number of patents per million inhabitants	0.007	11.000
	(0.748)	(0.779)
Trend	0.653***	1,265.129***
	(0.000)	(0.000)
Constant	-1,475.100***	-2858250.510***
	(0.000)	(0.000)
Observations	275	275
Number of provinces	69	69
Adjusted R-squared	0.898	0.901

Table A1 – 2SLS first-stage regression.

Notes: endogenous regressors = electoral franchise and its interaction term. NB: the coefficient of the minimum tax threshold is positive. However, once the actual coefficients are calculated by using the interaction term as well (cf. with procedure used to calculate them in Table 6) the marginal effect of raising the tax threshold turns out to be negative, as expected. Robust p-values are reported in parentheses.

2SLS first-stage regression [cross-section] Endogenous regressor: child labour IVs: average temperature and rainfall	(1) 1870	(2) 1885	(3) 1895	(4) 1907
Average temperature 2000 - 2009 (C)	-0.020	-0.996	-1.635***	-1.538***
	(-0.004)	(-0.200)	(-0.553)	(-0.512)
Average rainfall 2000 - 2009 (mm)	0.036**	0.037***	0.021**	0.020**
	(0.294)	(0.325)	(0.317)	(0.289)
Share of electors on males 21+	0.252	-0.038	0.086	0.087
	(0.167)	(-0.028)	(0.157)	(0.175)
Fiscal capacity	0.171	-0.155	-0.269	0.213
	(0.045)	(-0.050)	(-0.182)	(0.192)
Share of surtax on state tax (property)	1.865	2.785	-0.453	-0.060
	(0.046)	(0.081)	(-0.025)	(-0.004)
Lagged adult literacy rates (-10)	2.773	17.571	-33.376**	-31.623**
	(0.027)	(0.224)	(-0.795)	(-0.795)
Index of social capital	-7.933	1.686	-5.041	2.372
	(-0.108)	(0.024)	(-0.074)	(0.030)
Population density	-0.002	0.008	0.002	0.013*
	(-0.016)	(0.075)	(0.032)	(0.234)
Average height of army conscripts	-4.755***	-2.408**	-1.179	-0.742
	(-0.654)	(-0.360)	(-0.305)	(-0.197)
Average population of municipalities	-0.001	0.000	0.000	-0.000
	(-0.158)	(0.072)	(0.116)	(-0.062)
Exp. for infrastructures % budget	-17.008	2.801	-14.919	-41.982**
	(-0.126)	(0.010)	(-0.068)	(-0.267)
Enrolments in private schools % public	13.129	-18.092	22.572	-38.724
	(0.139)	(-0.134)	(0.185)	(-0.192)
Child dependency ratio	-281.911***	-399.106***	-162.133**	-85.985*
	(-0.740)	(-1.011)	(-0.643)	(-0.327)
Number of patents per million inhabitants	0.084	-0.081	0.011	-0.025
	(0.083)	(-0.091)	(0.031)	(-0.143)
Southern province	3.011	3.294	-11.278**	-10.011**
	(0.110)	(0.128)	(-0.738)	(-0.645)
Province from NEC	1.688	-1.863	-1.051	3.401
	(0.063)	(-0.074)	(-0.071)	(0.226)
Constant	832.234***	465.306**	287.335*	198.934
	(.)	(.)	(.)	(.)
Observations	68	69	69	69
Adjusted R-squared	0.713	0.725	0.514	0.612

Normalized beta coefficients in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A2 – 2SLS first-stage regression.

Notes: endogenous regressor = child labour. Instrumental variables = average temperature in Celsius degrees (2000 – 2009) and average rainfall (2000 – 2009) in mm.

Concluding remarks

The findings of the present research have a number of implications for the historiography of Italy's regional divide.

To begin with, claims that social capital ought to be considered the ultimate factor of regional growth in Italy should be downsized. Social capital is made up of different dimensions, reflecting different 'types' of capital. Some of them can possibly promote economic growth, such as generalised trust; others may be considered neutral or negative, like giving and mutual aid networks. An analysis of late-nineteenth century Italy shows that even trust had little influence on the pattern of regional convergence. There is no doubt that remarkable differences in social capital across Italy's regions existed in the nineteenth century. However, these can hardly explain the divergence observed in the whole twentieth century and up to the present day. Thus, it seems that explanations that combine present-day data and (often superficial) historical analyses may be focusing on a misleading mechanism. Instead, as Felice has sensibly suggested, social capital might have played an important role from the 1970s on – given the structural changes in the international economy that have taken place after the Fall of Bretton Woods and the oil crisis of 1973. Finally, it is worth noting that these conclusions are subject to a caveat. Although social capital in Italy had little direct effect on economic growth prior to the Great War, future research should investigate the influence that social capital might have had on people's well-being and their quality of life. In fact, social capital may improve learning outcomes and health status, especially in contexts characterised by poor infrastructure and limited public intervention. Hence, it might have played an important role in nineteenth-century Italy, by strengthening human development and paving the way for future economic development.

Secondly, this thesis goes beyond the paradigm that 'human capital matters for growth', and zeros in on which factors can promote its accumulation. This work explains what caused the persistence of Italy's large regional inequalities in primary schooling, that is, the extent to which it was funded and diffused in the late-nineteenth century and the Interwar period. It confirms what previous research has put forward: decentralised primary-level education hampered the process of convergence and dragged down the country's overall literacy. Centralised primary-level education, introduced in 1911 by the Daneo-Credaro Reform, eradicated regional disparities in expenditure, although improved funding did not immediately and fully translate into more equally

distributed schooling across regions. Convergence in enrolments accelerated remarkably during the 1920s, while the regional dispersion of the number of teachers and schools fell somewhat more rapidly during the 1930s. However, the effect of the Great Depression and, later, the focus on rearmament might have reduced the public effort to improve primary schooling.

Along the same lines, the third paper shows that a political mechanism à la Engerman-Sokoloff does not contribute to an understanding of Italy's divide in primary schooling under a decentralised education system. The hypothesis is that extreme inequalities in political influence lead to the rise of institutions that will be used to preserve the power of ruling elites. In such a context, education will not be promoted because improved literacy might result in more widespread enfranchisement, which might in turn place more power into the hands of the masses. The evidence clearly shows that political participation at the municipal level, proxied by local electoral franchise, did not delay regional convergence in schooling. Instead, the hypothesis that fiscal capacity caused regional inequalities in primary education is reinforced. Furthermore, enfranchisement was not correlated with fiscal policy, that is, local tax rates used to raise money in order to finance local public goods. Finally, total fiscal capacity was influenced by economic well-being and industrialization far more than by local decision-making. Future research may shed more light on what actually determined the way that Italy's municipalities raised fiscal revenues.

At this stage, the idea that the ruling class is responsible for the South's slow catch-up needs to be re-assessed. Generally, this kind of explanation may still be valid – although poor access to local policy-making and political voice was caused by the interaction of exogenous features and Italy's national electoral law. In any case, the focus should be probably moved from a local perspective to a national one. Whatever the reason that the South's local ruling class did not fund education or invest in a more active modernization, this work shows that Italy's government could have intervened earlier and more effectively. The case of primary education certainly reinforces this hypothesis. Had centralized primary schooling been introduced earlier, Italy's regional divide in literacy might have been much smaller on the eve of WWII. Oddly enough, the role of the state has been explored thoroughly in the past, but it has been rejected (and neglected) by contemporary research. For example, Fenoaltea has claimed that Italy's massive investment in railways in the late-nineteenth century did not bring about major economic benefits, a view that runs counter to Gerschenkron's notion of substitution of prerequisites. Similarly, contemporary observers believed that investing in primary education could merely ameliorate the human capital

of the country's citizens, with limited – or even negative – consequences for economic prosperity. Recent research has proved them wrong. Slow human capital accumulation has delayed the economic and human development in the south of the country, with major negative social and economic consequences. A greater focus on human capital accumulation might have changed Italy's pattern of regional growth – and favoured the rise of a more active modernization. New questions can be asked: what if the state had invested more in human capital than it did in top-down industrial policy to promote the South's convergence in the post-war period? If this had happened, a larger number of citizens would have probably played a more active role in embracing social, economic and human development – with positive consequences for long-term socioeconomic development. If any lesson can be drawn from this story, it is probably that a short-sighted, limited focus on education, human capital and culture can condemn a region – or a whole country – to poverty and decline. Hence, future research should re-assess the role played by Italy's government policy on contemporary as well as long-term economic development. The economics and economic history of education certainly represent fertile ground for reaching a better understanding of the extent to which state policy can prompt sustained economic growth. As Robert Allen has recently shown in his work on global economic history, public policy should not be shunted aside as a secondary factor, because it is capable of triggering a "big push" and a process of convergence by late-comer economies. Decentralized education worked in advanced economies. Instead, more centralised systems may perform better at an early stage of development insofar as low-development countries are taken into account, as shown by Chaudary et al..

Nineteenth-century Italy prefigured the Italy of today. The limited attention paid to promoting education by contemporary policy-makers may be justified in the context of the current economic crisis. However, OECD data reveal that this attitude dates back to pre-crisis times. Furthermore, the relative economic decline that the country has experienced in the last twenty years should serve as an alarm bell. Italy's traditional industry has not proven itself able to compete in new globalized markets, while limited human capital, combined with a serious emigration-driven brain-drain, is limiting the scope for future advances in new sectors propelled by innovations at the technological frontier. Investing in human capital may help to reverse the trend, but the effects are not likely to be seen in the near future, which makes implementing a more decisive education

policy politically difficult to digest. But, beyond economic prosperity, increased education at all levels may also spur the valuable virtues of human development and active participation.